



**INVESTIGATING THE ENGLISH COMMUNICATIVE COMPETENCE OF CHINESE  
SEAFARERS AND ITS EFFECT ON THEIR EMPLOYMENT IN THE  
INTERNATIONAL MARITIME LABOUR MARKET**

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## Abstract

With the development of technology and the introduction of shipping regulations, the rate of marine accidents has been declining steadily. However, accidents attributable to human factor still remain at a high level. As one aspect of human factors, communication failure accounts for 24% of maritime accidents at sea and still presents an increasing trend. This trend becomes a growing concern in the shipping industry. Effective oral communication among seafarers in every company becomes a compulsory requirement under the Manila Amendments 2010 in order to address the increased frequency of communication-related marine accidents worldwide. Effective communication plays an essential role in ensuring safe, secure and clean shipping.

Communication is a two-way process of conceiving, sending, receiving, interpreting and reacting to messages. A failure at any point in this process may result in ineffective communication. Ineffective communication can be disastrous in the maritime context. Communication involves a sender and a receiver and both of them are responsible for effective communication. Understanding and being understood are equally important for effective communication. Around 80% of the world merchant vessels are crewed with multinational personnel among whom the communication becomes an issue due to different cultures and different accents and usage of English language especially by non-native speakers

Chinese seafarers were able to pass required English exams and obtain their certificate of competency (CoC) in their maritime education and training institutes. Yet many of them still experience difficulty in communicating with foreign seafarers at sea. Although the number of certified Chinese seafarers has significantly increased in the last two decades, the share of Chinese seafarers in the international maritime labour market remains almost unchanged. For Chinese seafarers to compete in the international maritime labour market, it is not sufficient for them to meet the lowest standards set out in the International Convention on Standards of Training Certification and Watchkeeping for Seafarers (STCW) 78/95/2010. They must meet the shipping industry's demand for English communicative

competence. Some researchers claim that English deficiency of Chinese seafarer is one of the barriers for them to work on foreign ships. Other researchers believe that Chinese seafarers have improved their English ability due to much effort and investment made in maritime English education in China in the last two decades.

Currently, there is not only limited research on the level of English communicative competence of Chinese seafarers but a general lack of research on the communicative competence in the maritime context. The concept of communicative competence has been widely used and studied. Frameworks of communicative competence have been developed in different disciplines and for different purposes. However, these frameworks may not be suitable for measuring the communicative competence in the context of modern shipping. The building of the framework in the maritime context can help measure the communicative competence of Chinese seafarers and explore its effect on their competitiveness in the international maritime labour market. Four objectives were established in this study. First, this study tried to develop a framework of communicative competence in the maritime context. Second, based on this framework, this study tried to examine the current level of Chinese seafarers' communicative competence. Third, this study intended to explore the relationship between the communicative competence of Chinese seafarers and their employability in the international maritime market. Fourth, this study put forward recommendations for the improvement of maritime English education and training in China.

To achieve the research objectives, a mixed method approach was adopted for this study which involved both quantitative and qualitative research methods. Stakeholders' views from different perspectives were gathered with an online questionnaire and semi-structured interviews. With advertisements for participation posted on seafarer websites, a questionnaire was made available online for 8 months and 235 valid responses were received. The interview participants included 12 seafarers, 12 employers and 25 maritime English teachers. The 12 seafarers were randomly selected from the participants in the questionnaire who volunteered to participate. Using stratified sampling, 12 employers and 25 maritime English teachers were obtained based on the directories of the shipping companies and maritime education and training institutes registered in the China Maritime

Safety Administration (CMSA). Semi-structured interviews were conducted face-to-face or by telephone at interviewees' convenience. The questionnaire data were analysed using SPSS (Statistical Package for the Social Sciences) software version 22 and the interview data were analysed using NVivo software version 11.

The results of this study show that the framework of communicative competence in the maritime context consists of linguistic competence, intercultural competence, psycholinguistic competence, strategic competence and pragmatic competence. In view of the fact that seafarers of different nationalities are working in a confined space on board, the intercultural and psycholinguistic competences are required in the maritime context. Both employers and maritime English teachers agreed that the overall communicative competence of Chinese seafarers was poor or very poor and it had witnessed a declining trend during the past decade. However, Chinese seafarers held that their communicative competence was fair since they passed all the English exams required for an academic degree and a professional CoC. Both Chinese seafarers and foreign employers agreed that English communicative competence is one of the prerequisites for Chinese seafarers to be employed in the international maritime labour market. The requirement for English communication ability by foreign employers was much higher than that set out in STCW 78/95/2010 since only 10% of Chinese seafarers could pass job interviews conducted by foreign employers due to English communicative incompetence.

Chinese seafarers in this study agreed that English communication knowledge and skills received in maritime education and training institutes could not meet the demand of work and life on board. An inappropriate maritime English examinations system and boring maritime English teaching methods were highlighted by the Chinese seafarers. Most maritime English teachers interviewed agreed that the inappropriate maritime English examination system and textbooks as well as poor English foundation of maritime students were contributable to the unsatisfactory maritime English education and training in China. Foreign employers generally showed their concerns about the quality of maritime English education in China, especially the quality of maritime English teachers. The findings also indicated that there was a great lack of needs analysis for maritime English teaching and learning in China while needs analysis is indispensable for maritime English as a subset



of English for Specific Purposes (ESP).

It is suggested that the examinations and teaching materials should be revised to cater for English communicative teaching and learning in order to ensure that maritime English education is consistent with the communication demand of the international shipping market. Oral communication accounts for more than 85% of the total communication for a deck officer on board. However, instead of oral communication ability, reading ability is greatly emphasised in maritime English education and training in China. It is imperative to change this predicament. This work requires a close cooperation between China Maritime Safety Administration, maritime education and training institutes and shipping companies. Chinese seafarers gave top priority to ‘immersing in an English speaking environment’ and ‘encouraging learners to speak freely’. Currently, almost all maritime courses are delivered in Chinese and maritime English courses are mainly taught with a traditional grammar-translation method. The grammar–translation classes are dominated by maritime English teachers who endeavour to explain grammatical rules in Chinese. Instead of an English-medium education, it is a Chinese-medium maritime education and training since Chinese language is used as the primary medium of instruction. A lack of English speaking environment can greatly contribute to ‘dumb English’ which is a phenomenon that students can read English but cannot speak it well. In China, there is a limited English speaking environment except that in the classroom. In order for learners to be immersed in an English speaking environment as much as possible, it is necessary to write maritime courses bilingually to facilitate teaching maritime courses bilingually. A combination of ‘teaching maritime English in English’ and ‘teaching maritime courses bilingually’ was proposed. Within a favourable English learning environment, learners can be motivated and free to speak English with confidence. Furthermore, online maritime English education can be adopted by integrating interactive online learning activities which may help address the issue of lack of interactive communication practice found in this research.

This study developed a framework of communicative competence in the maritime context and opens new avenues for research on communicative competence in the maritime context. Based on the framework, this study is the first to provide empirical research on

the communicative competence of Chinese seafarers and its effect on their employment in the international maritime labour market. The future research may include how to operationalise the framework of communicative competence and how to apply it to maritime English teaching and learning and assessments. Future research may investigate innovative learning and teaching methods in maritime English education in China and the effectiveness of these methods in improving communicative competence of Chinese seafarers.

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## LIST OF ABBREVIATIONS

The following abbreviations are used in this thesis:

|          |  |
|----------|--|
| $\alpha$ | Cronbach's Alpha   |
| AMSA     | Australian Maritime Safety Authority                             |
| ANOVA    | Analysis of Variance   |
| AVE      | Average Variance Extracted                                       |
| BRM      | Bridge Resource Management                                       |
| CAPTAINS | Communication and Practical Training in Applied Nautical Studies |
| CET4     | College English Test Band 4                                      |
| CMSA     | China Maritime Safety Administration                             |
| CoC      | Certificate of Competency  |
| COLREG   | Regulations for Collision Avoiding                               |
| EFA      | Exploratory factor analysis                                      |
| ERM      | Engine room resource management                                  |
| ESP      | English for specific purposes                                    |
| FOCs     | Flags of Convenience   |
| HREC     | Human Research Ethics Committee                                  |
| IELTS    | International English Language Testing System                    |
| IMO      | International Maritime Organisation                              |
| LNG      | Liquefied natural gas  |
| MarTEL   | Maritime Test of English Language                                |
| MCA      | Maritime Coastguard Agency                                       |
| MEET     | Maritime English education and training                          |
| MET      | Maritime education and training                                  |
| MMI      | Man-machine interface  |

|       |   |
|-------|---|
| MSC   | Maritime Safety Committee   |
| OOW   | Officer on watch  |
| PAF   | Principal axis factoring  |
| PSCOs | Port State Control Officers   |
| SMCP  | Standard Marine Communication Phrases   |
| SMNV  | Standard Marine Navigational Vocabulary   |
| SOLAS | International Convention for the Safety of Life at Sea  |
| SPSS  | Statistical Package for the Social Sciences   |
| STCW  | International Regulation on Standards of Training, Certification and Watchkeeping for Seafarers |
| VHF   | Very High Frequency   |
| VTs   | Vessel Traffic Services   |

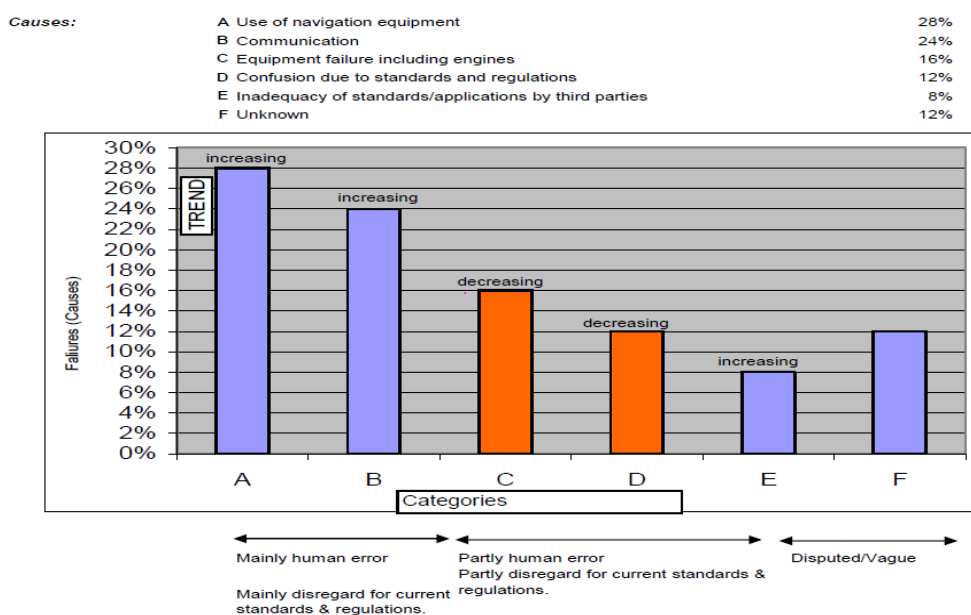
# Chapter 1 Introduction

‘All ships, all ships, this is..... I have problem with my rudder. My speed is 14 knots. Asking all ships to keep clear of me’. One vessel asked if the originator was having problems with his radar and there were many repeats of ‘it is my ruddah’, ‘Is it your rada?’ ‘,’ Yes, it is my rod-da, not my rudah’, etc. (MARS, 1993)

The words may sound similar to many non-native English speakers. This is just one example of a series of reports concerning poor English communication among seafarers through Very High Frequency (VHF) transmissions. Seafarers are from different parts of the world and it is hardly possible to operate a ship crewed with a multinational personnel without clear language communication.

## 1.1. Research background

Communication barriers at sea have become an increasing concern in the shipping industry since many maritime accidents are related to communication failures. Figure 1.1 shows the main causes of maritime accidents, among which ‘communication’ was listed as the second biggest cause, representing 24% with an increasing trend (Ziarati, 2006). As one of the human elements, communication has gained great significance for safe, secure and clean shipping.



**Figure 1: Main causes of maritime accidents (Ziarati, 2006)**

To maintain necessary global standards and to train and certify seafarers to operate technologically-advanced ships, the Manila Amendments were adopted at a diplomatic conference in Manila, the Philippines, in 2010, and entered into force in 2012 (Trenkner and Cole, 2012a). The Amendments are of great significance in shaping short and medium-term education and training for seafarers. Since the safety and security of ships and the preservation of the marine environment depends very much on the professionalism and competence of seafarers, research and investigation should focus on seafarers who work on board (Horck, 2004).

Although technology and automation of merchant vessels have contributed to reduce shipping losses from one ship per 100 in 1912 to one ship per 670 in 2009 (Allianz, 2012), the portion of accidents categorised as attributable to the human element has not decreased. Research reveals that 70% to 90% of recent marine accidents are related to this factor (Andersen, 2011).

Communication failure in our personal lives may result in distrust or embarrassment; in our professional lives, it may lead to marine incidents causing loss of life and property at sea or environmental damages. It is one of the main causes of maritime accidents imputable to the human element (Ziarati et al., 2009b). For example, when in an operational situation, such as berthing a ship or loading and unloading cargoes, communicative failure can pose a risk to the safety of a ship and those on board and ashore.

Over the centuries, English has established itself as a lingua franca at sea where it is commonly known as maritime English. As a language used by seafarers of different nationalities, the notion of maritime English has experienced some developments with the changing conditions of modern seafaring. In view of varied English levels of seafarers from different countries, the International Maritime Organisation (IMO) recognised the need for seafarers to communicate in a simple, unambiguous and effective manner. Initially, the Standard Marine Navigational Vocabulary (SMNV) was adopted by the IMO in 1977. This was followed by the Standard Marine Communication Phrases (SMCP) adopted by the 22<sup>nd</sup> Assembly of the IMO in 2001 (IMO, 2001). Compared to the SMNV, the SMCP covers all major safety-related verbal communication by adopting more comprehensive and standardised phrases.

The Manila Amendments 2010 resulted in new and amended requirements for maritime English. The Amendments have established the status of maritime English as a maritime subject of instruction and research under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 2010 (STCW 2010) (Trenkner and Cole, 2010c). The requirement related to maritime English is initially contained in the mandatory Part A of the STCW 2010 which explicitly stipulates that each Administration shall require every shipping company to ensure that effective oral communication is maintained on board ships at all times (IMO, 2011).

From the developments of maritime English, it can be seen that the focus of maritime English has shifted from navigational 'vocabulary' in 1977 and communication 'phrases' in 2001 and to 'effective communication' in 2010. Both 'SMNV' and 'SMCP' are simplified versions of standardised safety-related English while 'effective communication' greatly expands the scope of maritime English. Since 2010 when the Manila Amendments was adopted, seafarers have been required to be communicatively competent.

Communicative competence is initially defined by the anthropological linguist Dell Hymes (1972a) as both knowledge and demonstrated ability to carry out appropriate communication in particular contexts. Even if seafarers have adequate English skills, communication failure may still occur as other issues, such as cultural and social awareness, also contribute to understanding (Ziarati et al., 2009b). Communication failure not only exists between non-native English speakers, but also exists between non-native English speakers and native English speakers. An empirical research shows that Japanese Vessel Traffic Services (VTS) officers find it difficult to understand American and British seafarers who normally speak English very fast (Yangon et al., 2012). These native English speakers appear to assume that everyone should be able to understand their English. Furthermore, research shows that some native English speakers are reluctant to use the SMCP because they are not willing to speak English in a 'stunted' or 'condensed' way (Schriever, 2008). Consequently, the requirement for effective communication at an international level presents a great challenge to maritime English education and training in non-native English speaking nations, such as China.

The maritime English education and training in China is diversified due to the fact that there are various pathways of maritime education and training in China. Before the research on the maritime English education and training in China, it is necessary to have a general understanding of the whole maritime education and training in China. One paper can be referred to for this background information (See Appendix 1).

## **1.2. Research objectives and questions**

Research shows that Japanese VTS officers find it most difficult to understand Ukrainian, Russian and Chinese seafarers due to their 'heavy accents' (Yangon et al., 2012). Similarly, many Chinese seafarers experience communication difficulties due to lack of knowledge in English (Theotokas and Progoulaki, 2007). Not only will communication difficulties affect Chinese seafarers' experiences, feelings and perceptions on board ships, but also affect the employment of Chinese seafarers in the international maritime labour market (Lu et al., 2012). Although there is an oversupply of seafarers in the domestic maritime labour market in China, the share of Chinese seafarers in the international maritime labour market has seen little increase despite the nation's ambitions to improve this. Only 5% of Chinese seafarers are working on foreign vessels (Lee et al., 2014). Wu et al. (2013) and Tang et al. (2016) attribute the small market share to the regulatory restrictions China placed on the mobility of Chinese seafarers since foreign shipping employers are unable to directly recruit Chinese seafarers but only through Chinese licensed crewing agencies as a third party.

Some researchers claim that Chinese seafarers encounter communication barriers when communicating with foreign seafarers in English (Wu, 2004, Li and Wonham, 1999a, Ziarati et al., 2009c, Berg et al., 2013) while other researchers claim that Chinese seafarers have improved their English proficiency as a result of an increased emphasis on and investment in maritime English education in China (Sakhuja, 2011, Tang et al., 2016). Some literature also indicates that lack of English communication skills is no longer a barrier for Chinese seafarers to be integrated into the international maritime labour market due to an increased emphasis on maritime English education and training in China (Sakhuja, 2011). Despite these claims, there is limited empirical evidence on the current level of English proficiency and the extent to which it affects their employment in the maritime labour market.

Furthermore, the concept of communicative competence is relatively new in the maritime context and there is limited empirical research on the communicative competence of seafarers. This research is the first to develop a framework of communicative competence in the maritime context so as to provide a theoretical foundation for further research. Given the importance of communicative competence in the maritime context and the lack of empirical evidence on the English deficiency claimed in the literature, three research objectives were identified.

Research objective 1: To investigate the current level of communicative competence of Chinese seafarers.

The corresponding research question was framed:

Research question 1: What is the current level of communicative competence of Chinese seafarers?

Research objective 2: To investigate the extent to which the current level of communicative competence of Chinese seafarers affects their employment in the international maritime labour market.

The corresponding research question was raised:

Research question 2: To what extent does the communicative competence of Chinese seafarers affect their employment in the international maritime labour market?

Research objective 3: To propose suggestions for improving the communicative competence of Chinese seafarers from an educational perspective.

The corresponding research question was raised:

Research question 3: What measures can be taken to improve maritime English education in China?

### **1.3. Research significance**

The world fleet is crewed by around 1.6 million seafarers and the current supply-demand situation highlights a shortage of approximately 16,500 officers (ICS, 2016). Since only a very small portion of Chinese seafarers work on foreign ships, China has a great potential

to relieve the shortage problem by assigning more Chinese seafarers to foreign ships. The current oversupply of Chinese seafarers in the domestic market (Zhang, 2015) presents a pressure to China to assign more Chinese seafarers to the international maritime labour market. As the IMO increases the requirements for English communication ability of seafarers in response to the increased communication-related maritime accidents, those Chinese seafarers who are not competent in English communication face a great challenge to compete in the international maritime labour market. Under these backgrounds, the research significance can be summarised in the following aspects:

- It extends the concept of maritime English to communicative competence in response to the requirement of effective communication contained in STCW2010;
- Communication barriers can be minimised to reduce maritime accidents;
- It is expected that this research can help improve the communicative competence of Chinese seafarers so as to improve their competitiveness in the international maritime labour market;
- In return, the gained experience and knowledge of Chinese seafarers through working on foreign vessels can benefit the Chinese shipping industry.

#### 1.4. Research methodology

A mixed methods approach was adopted in this research which involved gathering, analysing, interpreting and integrating both quantitative and qualitative data. To answer the three research questions mentioned in Section 1.2, the data collection tools included an online questionnaire and semi-structured face-to-face, telephone and skype interviews. Online questionnaire was designed to collect data from seafarers. As supplementary information collected from different perspectives of stakeholders, semi-structured interviews data were collected from seafarers, maritime English teachers and employers. In total, there were 235 valid responses to the questionnaire and 12 seafarers, 12 employers and 25 maritime English teachers participated in the semi-structured interviews. The data gathered from the questionnaire were analysed using the statistical data analysis software: SPSS (Statistical Package for the Social Sciences) version 22 and data gathered from the semi-structured interviews were analysed using NVivo software version 11. The quantitative and qualitative analysis methods include descriptive analysis, factor analysis, independent samples test, coding query, coding comparison and source classification.



## 1.5. Thesis structure

The thesis contains five chapters: Introduction, Literature Review, Methodology, Data Analysis and Findings, and Discussion and Conclusions. Based on the University of Tasmania Guidelines for Incorporating Publication into a Thesis, eight papers including five papers published, one papers accepted for publication, two papers under review are incorporated in the different chapters of this thesis. Table 1 shows the distributions of the eight papers in different chapters of this thesis. The contents of the following four chapters are outlined below.

**Table 1: The structure of papers incorporated into the thesis**

| Chapters                      | Paper No. | Paper and publication information   | Status                                |
|-------------------------------|-----------|---|---------------------------------------|
| 1. Introduction               | 1         | Fan, L and Fei, J and Schriever, U and Fan, S, "Investigate the possible Impacts of differential seafarers' career progression on seafarer competence in China", <i>Proceedings of the 15th Annual general assembly International Association of Maritime Universities - Innovation in Maritime Education, Training and Research</i> , 27 - 30 October, Australian Maritime College, Launceston, Tasmania, pp. 206-213. ISBN 978-0-9806391-4-8 (2014) | Published (refereed conference paper) |
| 2. Literature Review          | 2         | Fan, L and Fei, J and Schriever, U and Fan, S, "The Establishment of a Framework of Communicative Competence of Seafarers: A Systematic Review", <i>What Is Next in Educational Research?</i> Sense Publishers Rotterdam, the Netherlands, pp. 233-248. ISBN 978-94-6300-524-1 (2016)   | Published (refereed book chapter)     |
|                               | 3         | Fan, L and Fei, J and Schriever, U and Fan, S, "A review of maritime English education and training in China in comparison with other top suppliers of seafarers", <i>Asia-Pacific Journal of Marine Science &amp; Education</i> , 5 (2) pp. 22-38. ISSN 2221-9935 (2015)   | Published (refereed journal Paper)    |
|                               | 4         | Fan, L and Fei, J and Schriever, U and Fan, S, "Communication challenges to maritime English education and training in China in the modern shipping world", <i>Papers and presentations of the 2015 Master Mariners Congress</i> , 13 - 15 April, Launceston, Tasmania, pp. 1-10. (2015)  | Published (refereed conference paper) |
| 4. Data Analysis and Findings | 5         | Fan, L, "An Overview of Chinese Seafarers' Communicative Competence in English—Chinese seafarers' Perspectives" submitted at TransNav'2017 Conference, 21 to 23 June 2017.  | Accepted (refereed paper)             |
|                               | 6         | Fan, L and Fei, J and Schriever, U and Fan, S, "An Empirical Study on the Communicative Competence of Chinese Seafarers in the Context of building China into a Maritime Power", submitted to <i>Marine Policy</i> , ISSN: 0308-597X(2017)  | Under review by a journal             |
|                               | 7         | Fan, L and Fei, J and Schriever, U and Fan, S, "The Communicative Competence of Chinese Seafarers and their Employability in the International Maritime Labour Market". <i>Marine Policy</i> , 83 (2017) 137-145, ISSN: 0308-597X, DOI: 10.1016/j.marpol.2017.05.035  | Published (refereed journal paper)    |
|                               | 8         | Fan, L and Fei, J and Schriever, U and Fan, S, "What is Wrong with Maritime English Education in China?", submitted to <i>Marine Policy</i> , ISSN: 0308-597X(2017)   | Under review by a journal             |

Chapter 2 presents a literature review of this research. It focuses on a systematic review of the notion of communicative competence in the general context in order to develop a framework of communicative competence in the maritime context. This chapter also reviews the maritime English education and training in China in comparison with other major seafarer supplying nations. The challenges facing maritime English education and training in China are also discussed. The literature review was conducted based on literature in China and overseas. This chapter is presented in the form of three published papers dealing with the abovementioned three aspects.

Chapter 3 describes the methodology applied in this research based on the research objectives and research questions. This chapter discusses the research philosophy, research design, research methods and research instruments. The chapter then explains the sampling process for the online questionnaire survey and sampling method for the interviews. The administration of the data collection process is also explained and discussed.

Chapter 4 reports the results of data analysis and the findings of the quantitative and qualitative research. This chapter is presented in the form of four papers listed in Table 1. As mentioned, the participants of the research consisted of the three groups: Chinese seafarers, foreign employers and maritime English teachers. Two papers were based on the data collected from Chinese seafarers and the other two papers are based on the data collected from foreign employers and maritime English teachers respectively. In order to answer the research questions appropriately, some data from different groups were combined and compared.

Chapter 5 provides an overarching view of the findings in Chapter 4 with discussions before conclusions were made for this research. The chapter also addresses issues including research contributions, limitations and recommendations for further research. This chapter synthesises the findings and discussions of this research and demonstrates that the research comprises a coherent whole.

## 1.6 Summary

The Introduction Chapter provided general background information of the research and the structure of the thesis. The chapter briefly discussed the relationship between communication and maritime accidents, the IMO requirements for English communication, and the factors affecting effective communication, based on which the research objectives and questions were presented and justified before highlighting the significance of this study. Based on the research questions, this chapter then generally discussed the research methodology which included both quantitative and qualitative research.

## Chapter 2 Literature review

Besides speaking general English, seafarers have the distinction of using a vernacular English of their own. This English is peculiar to the seafaring profession and termed as maritime English. Maritime English is an umbrella term which refers to the English language used by seafarers both at sea and in ports and by individuals working in the shipping and

shipbuilding industry (Valle, 2013). In this research, maritime English mainly refers to the English language used by seafarers at work and in life on board including technical, work-related communication and daily social communication on board.

The concept of English communicative competence of seafarers corresponds to the requirement of effective communication for seafarers contained in STCW 2010 and it is relatively new in the maritime context. This chapter first tried to develop a framework of English communicative competence in the maritime context from the literature. Then, it reviewed the current situations of maritime English education in China and in other seafarer supplying nations. Challenges facing maritime English education in China were investigated after identifying the gap in the development of English communicative competence in China. Other relevant literature can be found in the corresponding papers incorporated in the chapter of data analysis and findings. This chapter consists of three aspects related to communicative competence of Chinese seafarers:

1) The concept of English communicative competence in the maritime context

Paper Two: This has been published as Fan, L and Fei, J and Schriever, U and Fan, S, “The Establishment of a Framework of Communicative Competence of Seafarers: A Systematic Review”, *What is Next in Educational Research?*, Sense Publishers, S Fan, J Fielding-Wells (ed), The Netherlands, pp. 223-248. ISBN 9789463005227 (2016) [Refereed Research Book Chapter]

2) Maritime English education and training in China with a comparison with other major seafarer supplying nations.

Paper three: This has been published as Fan, L and Fei, J and Schriever, U and Fan, S, “A review of maritime English education and training on China in comparison with other top suppliers of seafarers”, *Asia-Pacific Journal of Marine Science & Education*, 5 (2) pp. 22-38. ISSN 2221-9935 (2015) [Refereed Journal Article]

3) The challenges facing maritime English education and training in China

Paper four: This has been published as Fan, L and Fei, J and Schriever, U and Fan, S, “Communication challenges to maritime English education and training in China in the modern shipping world”, *Papers and presentations of the 2015 Master Mariners Congress*, 13 - 15 April, Launceston, Tasmania, pp. 1-10. (2015) [Refereed Conference Paper]

The three papers were presented in the following sections:

This section of chapter 2 has been removed for copyright or proprietary reasons.

It has been published as: Fan, L and Fei, J and Schriever, U and Fan, S, "The Establishment of a Framework of Communicative Competence of Seafarers: A Systematic Review", *What Is Next in Educational Research?* Sense Publishers Rotterdam, the Netherlands, pp. 233-248. ISBN 978-94-6300-524-1 (2016)

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It has been published as: Fan, L and Fei, J and Schriever, U and Fan, S, "A review of maritime English education and training in China in comparison with other top suppliers of seafarers", Asia-Pacific Journal of Marine Science & Education, 5 (2) pp. 22-38. ISSN 2221-9935 (2015)

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It has been published as: Fan, L and Fei, J and Schriever, U and Fan, S, "Communication challenges to maritime English education and training in China in the modern shipping world", Papers and presentations of the 2015 Master Mariners Congress, 13 - 15 April, Launceston, Tasmania, pp. 1-10. (2015)

## Chapter 3 Methodology

### 3.1 Introduction

The literature review chapter has discussed the concept of communicative competence in the maritime context, the current situation of and challenges facing maritime English education and training in China. Communication failure has been one of the main causes of maritime accidents, mainly due to a prevailing multicultural, multinational and multilingual working environment on board. Even though seafarers have good English skills, communication failure may still occur in the absence of a shared cultural background. With an ever-increasing requirement for seafarers' communicative competence, China seems to fall behind in maritime English education and training. The gap between the current level of Chinese seafarers' communicative competence and employers' expectations seems to be expanding further. This research aims to identify the gap and provide suggestions for rectifying it in order to improve the competitiveness of Chinese seafarers in the international maritime labour market.

This chapter provides the detail of the methodology that helps fulfil the aim. Methodology involves the theory of how research should be carried out. Figure 3.1 shows the structure of the methodology chapter of this research. Based on the research aim, objectives and questions, this chapter discusses and justifies the philosophic worldview assumption, research approach, research design and research methods for this research. This chapter then outlines the data analysis tools and methods applied to the data collected.



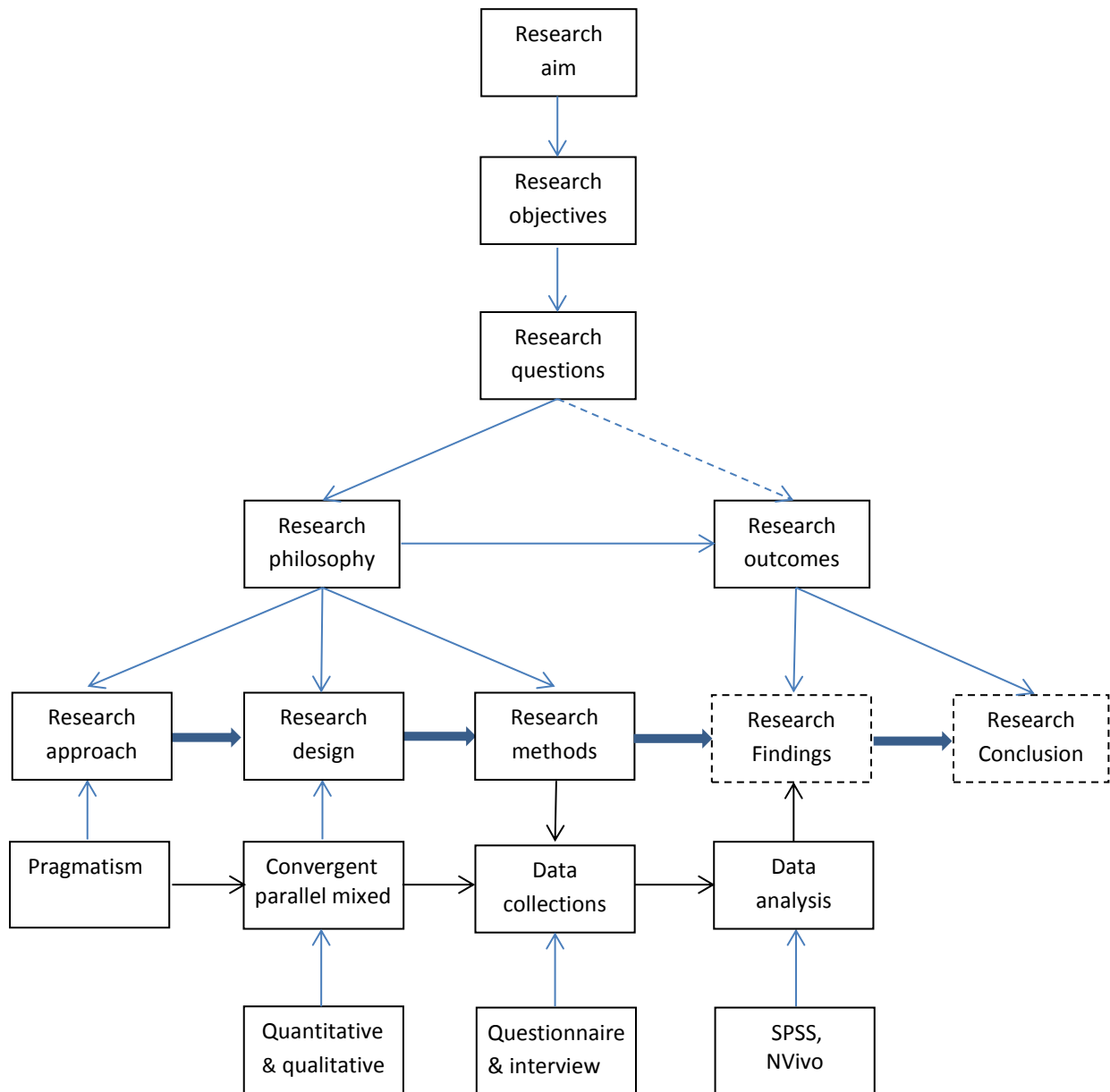


Figure 3.1 The methodology framework

### 3.2 Research Philosophy

The term philosophy or worldview or paradigm refers to a 'general philosophical orientation about the world and the nature of research' (Creswell, 2014). The two main ways to view the world are ontology (a view of the nature of reality or being) and epistemology (a view of what constitutes acceptable knowledge) (Bryman and Bell, 2015). Based on the differences between ontology and epistemology, four different research philosophies can be identified: positivism, realism, interpretivism and pragmatism (Saunders et al., 2011b). Different

philosophies finally determine the choice of philosophical approach and choice of data collection techniques.

The research questions to a great extent involve an opinion-based subjectivism, one aspect of either ontology or epistemology. Positivist research philosophy emphasises facts or phenomena in reality (objectivism) external to social factors. This research is not a positivist one since there is no truth or absolute reality to be explored. On the other hand, interpretivist research philosophy focuses on the understanding of world by analysing social factors, like human attitudes or feelings (subjectivism). This research is not an interpretivist one either since the research results are not purely dependent upon perspectives of research participants. This research is likely a pragmatism one since the problem-centred pragmatism arises from situations or consequences (Creswell, 2014). The pragmatism deals with the questions what (problems) and how (solutions) in the research based on the situations and consequences. The philosophy for this research is summarised in Table 3.1.

Table 3.1 The research philosophy of pragmatism for this research

|                                   | <b>Pragmatism</b>  |
|-----------------------------------|--|
| <b>Ontology</b>                   | multiple views chosen to best enable answering of research questions   |
| <b>Epistemology</b>               | Focus on practical applied research, integrating different perspectives to help interpret data                         |
| <b>Axiology</b>                   | Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view |
| <b>Data collection techniques</b> | Mixed or multiple method designs, quantitative and qualitative   |

Source: Modification based on 'Comparison of four research philosophies in management research' by Saunders et al. (2011b)

### 3.2.1 Research Approach

Research approaches involve plans of steps from general assumptions to concrete methods of data collection, analysis and interpretation (Creswell, 2014). Generally, there are three research approaches: qualitative, quantitative and mixed methods. The qualitative research approach involves exploring underlying reasons for a social problem by analysing data inductively from particulars to general themes. The quantitative research approach uses statistical procedures to test objective theories deductively. Mixed methods research involves

both quantitative and qualitative data to provide more comprehension of a research problem than either approach alone (Creswell, 2014).

Research approaches can be deductive, inductive and combination of the two. Generally, the deductive approach is related more to positivist research philosophy and the inductive approach to interpretivist research philosophy (Saunders et al., 2011b). As a dominant research approach in natural sciences, deduction allows one to develop a theory and test it. In contrast, induction which is popular in social sciences allows one to build a theory by analysing the data one has collected, for example, from interviews (Saunders et al., 2011b). However, there are no rigid divisions between deduction and induction and it is often beneficial to combine the two (Saunders et al., 2011). The qualitative research of inductive nature and the quantitative research of deductive nature are not distinct but complementary to each other. Qualitative data collection tends to include open-ended questions such as found in interviews while quantitative data collection usually is composed of closed-ended questions such as found in questionnaires (Steckler et al., 1992). The first two research questions of this study (as presented in Section 1.2) mainly deal with what is happening (deduction) and the third research question is intended to investigate possible solutions to improving Chinese seafarers' communicative competence based on the reasons (induction) that may have contributed to the problems identified in the second question. Consequently, this research adopted both inductive and deductive approaches.

### 3.2.2 Research Design

Following the discussion of research philosophy, research design is discussed in order to turn research questions into a research project (Robson, 2002). Research design involves choices of research strategy, data collection techniques and analysis procedures, and time horizon. The justification of these choices should always be based on research objectives and questions.

The choices of research strategy could be experiments, questionnaires, case studies, and grounded theory. Questionnaires can collect a large quantity of data from a sizeable population in a highly efficient way, allowing easy comparison and analysis (Saunders et al., 2011). Case studies using interviews can overcome the drawback of questionnaires which mainly contain fixed questions. The case study strategy mainly answers 'why' and 'how'

questions. In-depth questions can be asked in an interview. Combining both case study and questionnaire strategies in one research, triangulation can provide more complete data than other data collection techniques used separately. Since this research is the first to involve a range of stakeholders, triangulation with both questionnaire and interviews can help answer the research questions.

### 3.2.3 Research methods

Research methods refer to procedures and techniques that are applied to gather, analyse and interpret data. Procedures may be in the forms of questionnaire, observation and interview while the techniques may be quantitative, qualitative and mixed ones (Saunders et al., 2011b). Research methods can be mono in which a single data collection technique and corresponding analysis procedures are applied or mixed in which two or more data collection techniques and analysis procedures are utilised to answer the research questions. It is increasingly popular within business and management research to use mixed methods (quantitative and qualitative) in a single research (Curran and Blackburn, 2001). Creswell (2014) claims that quantitative and qualitative methods are combined to provide the best understanding of a pragmatic research problem.

For this research, the three research questions require both quantitative and qualitative methods in varied degrees. For example, in order to investigate the current level of communicative competence of Chinese seafarers, a questionnaire is preferable as the main data collection instrument in view of a big population of Chinese seafarers. For the in-depth questions, such as contributing factors to the communication issues of Chinese seafarers, interviews are more suitable. A combination of the two instruments is appropriate to gather information from different perspectives of participants. Different perceptions from different interest groups can provide a comprehensive understanding of a research problem and reduce bias. Since there are intrinsic limitations for each data collection strategy, it is appropriate to use mixed methods integrating qualitative and quantitative ones to complement each other.

### 3.3 Mixed methods research

Mixed methods research has been applied to research studies in various fields of social and human sciences (Creswell, 2014), such as interpersonal communication (Boneva et al., 2001).

Under mixed methods procedures, both quantitative data and qualitative data are collected, analysed and interpreted. Mixed methods can provide different types of information considering the limitations and strengths of each approach. The advantages of using mixed method research include but are not limited to the following (Bryman, 2006):

- Research findings can be corroborated by using more than one data collection methods.
- Qualitative method and quantitative method can facilitate each other in rationalising questions and selecting participants.
- Both qualitative and quantitative methods complement and interpret each other.
- Qualitative method focuses on micro (in-depth) aspects and quantitative method on macro (wide coverage) aspects.

Mixed methods research uses both quantitative and qualitative methods either at the same time or one after the other. Generally, there are two types of mixed methods designs: convergent parallel mixed methods design and sequential mixed methods design (Creswell, 2014). The former emphasises the independences of quantitative and qualitative approaches, e.g., data of both approaches are collected and analysed individually and the results are compared to see whether their outcomes are consistent with each other or not (see Figure 3.2). The latter involves a two-phase design in which the findings of one research method are used to inform the other. The justification for adopting the convergent parallel mixed methods design in this research is explained as follows:

First, based on the research objectives and questions, this research involves different target populations including seafarers, maritime English teachers and seafarer employers. In a mixed methods design, both quantitative method and qualitative method used in this research complemented each other in explaining the data and discussing the results. Second, due to the different target populations with different knowledge and perceptions of research questions, the quantitative and qualitative approaches in this research were quite independent in terms of the design of questions and data analysis. As such, the quantitative and qualitative methods proceed at the same time. After data analysis, the findings of both quantitative and qualitative analyses were integrated through a comparison.

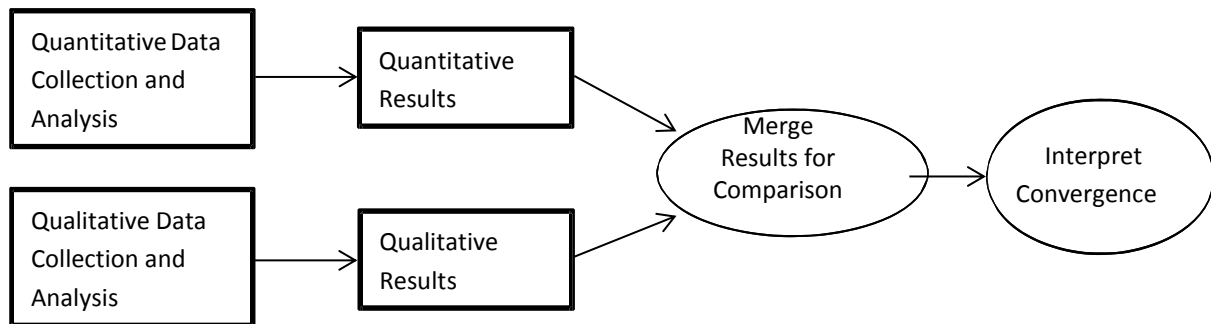


Figure 3.2 Convergent Parallel mixed methods Design (Creswell, 2014)

### 3.4 Research instruments

Bryman (2006) concludes that structured interviews and questionnaires within a cross-sectional design are predominant in quantitative research and semi-structured interviews in qualitative research. This research employed both questionnaire and semi-structured interviews. The justification for such choice is explained below.

#### 3.4.1 Questionnaire

The questionnaire is regarded as one of the most popular data collection techniques within the survey strategy and is suitable for descriptive and explanatory research (Saunders et al., 2011a). Unlike in-depth and semi-structured interviews, questionnaire questions must be developed precisely prior to data collection. The relationships existing between dependent variables (response variables), independent variables (predictor variables) and extraneous variables (control variables) must be identified (Saunders et al., 2011a). Besides, three types of data variables must be distinguished: opinion variables such as respondents' views about something, behavioural variables such as respondents' behaviours and attribute variables such as respondents' ages, educations, occupations, etc. (Dillman, 2011). When designing individual questions, open questions and closed questions can be considered. In order to ensure valid responses, questions need to be translated into the language of target population when necessary (Saunders et al., 2011a). For the questionnaire of this research, forward and backward translations were adopted to ensure equivalence because the questionnaire was developed in English while the actual data collection occurred in China where most people were not comfortable to read English. The forward and backward

translations for this research were completed by two bilingual researchers in this research area. Minor changes were made to ensure unanimity regarding meaning and appropriateness.

In view of a big population of Chinese seafarers located in different parts of China, it is feasible and economical to adopt a web-based questionnaire (Hewson, 2003). As a survey instrument, online questionnaire survey is becoming increasingly popular (Riggle et al., 2005, Teo, 2002, Sue and Ritter, 2012). For online questionnaire survey, advertising widely via a range of media with statement of research purposes is recommended (Witmer et al., 1999).

Except for a few open-ended questions, the questionnaire consisted of multiple-choice and Likert-scale items (Appendix 3). A mapping between five components of communicative competence and their corresponding questions is also provided in Appendix 7. The questions were developed based on the literature review and designed to answer the research questions. For this research, the questionnaire includes items related to demographical information, current level of communicative competence of the Chinese seafarers, perceptions of maritime English education and training, factors affecting employment in the global maritime labour market and recommendations for improving maritime English education in China.

### 3.4.2 Semi-structured Interviews

Based on the research objectives and research questions, interviews can be structured, unstructured and semi-structured (Cachia and Millward, 2011). Structured interviews, the format of which is similar to a self-administered questionnaire, comprise a predetermined set of questions. However, a structured interview is inappropriate for an inductive approach which is not limited to predetermined topics (Mische Lawson et al., 2015). Unstructured interviews, on the other hand, have no predetermined questions but explore the issues as the interview process unfolds. The data gathered from such interviews offer an in-depth understanding of the research issue which is typically conducive to qualitative analysis (Cachia and Millward, 2011).

Semi-structured interviews share the features of both structured and unstructured interviews, including some predetermined questions and additional questions. In semi-structured interviews the researcher may not necessarily follow the order of predetermined questions

depending on the flow of the conversation and additional questions can be asked if any (Irvine et al., 2013). With confined variables, semi-structured interviews generally tend to probe an in-depth understanding of research questions from a smaller number of participants with additional enquires. The interviewer needs to build rapport and use interview techniques while maintaining control of the conversation (Miller and Rollnick, 2012). Note taking or audio-recording can be used during all types of interviews which can be conducted on face-to-face, by telephone or electronically via the Internet (Boneva et al., 2001).

For this research, semi-structured interviews were conducted based on some prepared open-ended questions (Appendix 5): eight questions for employers, nine questions for maritime English teachers and four questions for seafarers. The questions varied with different groups but addressed all three research questions. In the semi-structured interviews, the order of questions was adjusted as needed and additional questions were asked to clarify interviewee's viewpoints and to collect further information on the topic.

### 3.5 Pre-test

The pre-testing of research instruments of the questionnaire and interview in this research was carried out in order to check the appropriateness, clarity and adequacy of the instrument. For this research, peers, experts and potential participants were invited to go through the questionnaire and provide feedback. The pre-test involved twelve doctorate candidates and six teachers in the author's department, two maritime English experts and ten seafarers, three maritime English teachers and two employers. During the pre-test, a few changes were made to both research instruments, including the adjustment of the order of the interview questions, rewording to clarify questions, adding to, and removing questions from both the questionnaire and interview instruments.

### 3.6 Research ethics

Research ethics refers to the appropriateness of research process in relation to the moral aspects when participants are involved to ensure that a code of ethics is met (Saunders et al., 2011b). The reasons for adhering to a code of ethics are to promote the quality of research, encourage the value of collaborative work, enhance the accountability of researchers, build public support for research and contribute to other moral and social values (Resnik, 2011). Some ethical principles need to be considered for research ethics, including but not limited



to honesty, objectivity, integrity, carefulness, openness, respect, confidentiality, responsibility, non-discrimination, competence, legality and human subjects protection (Shamoo and Resnik, 2003). These principles were kept in mind during the whole research process from clarifying research topic to analysing and reporting research findings. Before the survey was carried out, an ethics application was submitted and approved by the Tasmanian Social Science Human Research Ethics Committee (HREC). The ethics reference number for this research is H0014968.

### **3.7 Data collection**

#### **3.7.1 Target population and sampling**

Based on the aforementioned research objectives and research questions, the target population was chosen from relevant groups who are familiar with the communicative competence of the Chinese seafarers and its relationships with their employment in the international maritime labour market. The target population includes seafarers, their employers and maritime English teachers. Within the target population, random sampling was applied in the selection process. Currently, over 700 million Chinese have access to internet and over 70% of them search information on mobile devices (Xinhua, 2017). The wide coverage of internet in China provides Chinese seafarers with easy and convenient access to internet. There are around 120,000 certified oceangoing ship officers (including deck officers and engineers) and around 46,000 officers are employed on foreign-flagged ships with 80% of them flying Panama and Singapore flags (MOT, 2015). There are less than 90,000 active oceangoing officers (Zhang, 2015) due to a high wastage of Chinese seafarers (Fei and Lu, 2015). Currently, there are 210 crewing agencies engaged in assigning Chinese seafarers to foreign ships and 50 maritime higher education and training institutes (MOT, 2015).

For the questionnaire sample size, Saunders et al. (2011a) claim that the sample size should be 384 if the population exceeds 100,000 provided a confidence level of 95% is adopted as most researchers do. However, Bennekou (2003) claims that the sample size exceeding 200 can be sufficient under most assumptions and parameters of a survey research when the target population is large. The sample size for this research is 235 which met the sample size suggested by Bennekou. For the sample size for interviews, Guest et al. (2006) suggest that 12 in-depth interviews should suffice for a homogenous group. Saunders et al. (2011a)

recommend that 25 to 30 interviews should be sufficient for a general study. For this study, the participants for interviews consisted of 12 seafarers, 12 employers and 25 maritime English teachers.

### **3.7.2 Quantitative stage: The web-based questionnaire survey**

In China, some crewing agents are solely assigning Chinese seafarers to the domestic maritime labour market; some are responsible for the international market and others are for both domestic and international markets. Some companies have their own ships while others do not. If the author had chosen to go to some specific agents or companies, a bias of sampling would be easily generated as a result since the nature of crewing for different agents or companies is totally different. Due to the fact that the author could not access the detail of shipping companies and crewing agents in terms of the weighting and number of seafarers assigned to the domestic or international market, it was inappropriate to employ the stratified sampling method either. Consequently, online survey was used as the alternative to maintain the principle of random sampling in order to best represent the target population.

Due to the nature of mobility of seafarers and lack of contact information of Chinese seafarers, the web-based questionnaire was completed online by participants who were willing to take part in the research. The intention of this research had been expressed to relevant website administrators in advance. The online questionnaire was advertised on three popular websites for Chinese seafarers with web traffic of over 1.5 million visitors. The number of visitors of websites are shown on the websites and accumulated from the first year of the websites. A link to this study was provided on these websites. The online questionnaire was made available online for eight months.

### **3.7.3 Qualitative stage: Semi-structured interview**

The 12 seafarers were randomly selected from 18 participants in the questionnaire who volunteered to participate. The 18 participants were coded and selected by drawing lots. Using stratified sampling, 12 employers and 25 maritime English teachers were obtained based on the directories of the shipping companies and maritime education and training institutes registered in the China Maritime Safety Administration (CMSA).

In China, registration is required for any unit that engaging in assigning Chinese seafarers to foreign ships. All these units are mainly centred along the east coast of China. Three major port cities located in the northern, middle and southern parts of China were selected for the purpose of sampling. The units within each city were coded and selected by drawing lots. Notice of intention was provided to them before conducting interviews. The majority of maritime education and training institutes are distributed along the east coast of China. There are three major maritime universities located in the northern, middle and southern parts of China. The 50 maritime higher education institutes were firstly categorised into three groups according to the three different geographic locations. Each category of location was further divided into two groups in terms of education levels: non-degree and degree maritime education. Three institutes were selected from each category. All the institutes were coded and selected by drawing lots. One or two maritime English teachers in each institute were selected for the interview. According to the contact information provided, the administration staff were first contacted for permission. With the assistance of administration staff, an arrangement was then made for an interview with each maritime English teacher who was randomly selected from a list provided by the administration staff.

Five face-to-face, two telephone, and five Skype interviews were conducted at the employers' convenience and ten face-to-face and fifteen telephone interviews were conducted at the teachers' convenience. A voice recorder and notepad were used with the interviewees' permission during the interview. Except for one foreigner, all other interviewees were not willing to be recorded. The surnames of interviewees and their abbreviations of organisations were kept in the notepad and then removed and replaced by codes when being analysed.

### **3.8 Data Analysis**

#### **3.8.1 Quantitative data analysis**

Using SPSS, quantitative data can be classified into categorical data and numerical data, and all data types should be numerically coded which enable data entry more efficiently and safely (Saunders et al., 2011a). This was automatically accomplished by online survey software. Besides the general descriptive analysis which provided the means, standard deviations and range of scores for all independent and dependent variables, the exploratory factor analysis (EFA) was conducted to identify the relationships between independent variables and test

the reliability of the questionnaire. The Friedman Test was also conducted to rank the importance of variables, such as factors affecting the employment of Chinese seafarers on foreign ships. By comparing variables, relationships between variables were analysed and displayed in the forms of tables and diagrams (Sparrow, 1989). In this research, ANOVA was applied to test whether or not significant differences existed between groups.

### 3.8.2 Qualitative data analysis

Qualitative data analysis software generally has such functions as storage, coding, retrieval, comparison, and linking of that data (Denardo, 2002) and NVivo™ is regarded as a very popular qualitative data analysis program (Jones, 2007). Before being analysed, the data of this research were transcribed into a written form by manual typing. The specific analysis processes include summarising, categorising and structuring (Saunders et al., 2011b) which are used separately or in combination to facilitate data interpretation. In this research, chunks or units of data were categorised and coded according to a theoretical framework or relationships between variables. Besides, some qualitative data were quantified for analysis and displayed into summary diagrams in order to highlight the variables, such as main barriers to employing Chinese seafarers.

### 3.8.3 Mixed methods data analysis

For mixed methods, quantitative and qualitative data were analysed individually before merging them for comparison within discussion. The researcher compared the findings of each method to see their conformity or disconformity (Creswell, 2014). Due to different target populations in each method, cross comparisons were made for data analysis in this research. As such, perceptions of seafarers, employers and maritime English teachers were compared. Furthermore, the findings from questionnaire and interviews were compared in the discussion chapter.

## 3.9 Reliability and validity

Reliability and validity in research design are emphasised to reduce the possibility of obtaining wrong answers from participants. Reliability indicates the degree to which consistent findings can be obtained from data collection techniques or analysis procedures on different occasions or by different investigators (Easterby-Smith et al., 2012). Four threats to reliability are

identified by Robson (2002): participant error, participant bias, observer error and observer bias. For example, a survey can produce different results at different times when participants are under pressure or in negative moods (Saunders et al., 2011b). Similarly, answers can be biased if participants have their concerns due to pressure from their managers or organisations. On the observer side, different ways of asking questions in both surveys and interviews can elicit different answers. Similarly, the outcomes of surveys and interviews can vary with different interpretations of participants' answers (Saunders et al., 2011b).

For this research, both the questionnaire and interview data were kept confidential according to research ethics policy and participants could feel free to choose to participate in this research. For the questionnaire, data were checked before being analysed since sixteen responses had more than 50% data missing. For the interviews, through informal chatting, interviewees were encouraged to express their views freely without purposeful interruption. Besides, to ensure the reliability of the questionnaire, the internal reliability analysis was conducted to obtain Cronbach's Alpha ( $\alpha$ ). The internal reliability indicates the degree to which the measuring items correlate with each other in measuring their latent constructs (Awang, 2012). In this study, the Cronbach's Alpha ( $\alpha$ ) values indicated the internal consistency of the measurement instrument of communicative competence.

Validity is meant to ensure the quality of measurement tools, that is, the extent to which the tools can accurately measure what they are supposed to measure (Bailey and Pearson, 1983). Common threats to the validity are shown as follows: history (the effect of relevant events happened on the measurement), maturation (most participants may improve their performance if the measurement lasts enough time, i.e. a few years), testing (the effects of taking a test on the outcomes of taking a second test), instrumentation (the effect of changes in the instrument on the outcomes), statistical regression (the selection of participants on the basis of extreme performances), mortality (the loss of subjects due to less motivation) and John Henry effect (participants may outperform themselves when they are aware that they are in an experiment) (Campbell et al., 1963, Cook et al., 1979).

For this research, these threats were minor as it involved no test or experiment. Both convergent validity and discriminant validity were verified to establish construct validity. The convergent validity provides evidence that the items of each construct converge on the same

construct by computing the Average Variance Extracted (AVE) for every construct and the discriminant validity provides evidence that discriminations exist between different construct by calculating the correlation between underlying constructs (Bagozzi et al., 1991). In this research, the convergent validity and discriminant validity were supported by the evidence that not only all measuring items were related to their corresponding components of communicative competence but also each component was discriminative.

### 3.10 Conclusion

Knowledge creation can be achieved through fundamental research, applied research (Gibbons et al., 1994) and ethnological research (Huff and Huff, 2001). Research methodology is an essential means to help answer research questions based on research objectives. This research mainly falls into the category of applied research. The outcomes of applied research will support practitioners to fill the 'relevance gap' resulting from the disconnection of knowledge producers and knowledge users. The support can provide general enlightenment on the issue of concern (Saunders et al., 2011b). As such, when readily applied in practical contexts, the outcomes can be transferred into practice by practitioners.

The research is a single-phase study in which quantitative and qualitative data were collected simultaneously and merged to answer the research questions via integrative mixed methods analysis. Under the research philosophy of pragmatism, this mixed methods study addressed the effect of communicative competence of Chinese seafarers on their competitiveness in the global maritime labour market. A convergent parallel mixed methods design was used. Lastly, the data gathered from the questionnaire and interviews were analysed with the software SPSS and NVivo respectively.

## Chapter 4 Data analysis and findings

Based on the adopted mixed methods discussed in Chapter 3, this chapter reports the results of data analysis and the findings of the quantitative and qualitative research. This chapter is presented in the form of four papers. As mentioned, the participants of the research consisted of three groups: Chinese seafarers, foreign employers and maritime English teachers. Two papers were written based on the data collected from Chinese seafarers and the other two papers are mainly based on the data collected from foreign employers and maritime English teachers respectively. The fifth and sixth papers answered the first research question: 'What is the current level of communicative competence of Chinese seafarers?'; the seventh paper answered the second research question: 'To what extent does the communicative

competence of Chinese seafarers affect their employment in the international maritime labour market?'; and the eighth paper answered the third research questions: 'What measures can be taken to improve maritime English education in China?'. In order to answer the research questions appropriately, some data from different groups were combined and compared.

The four papers related to the results of data analysis and the findings of the research are listed as follow:

Research question 1: What is the current level of communicative competence of Chinese seafarers?

Paper five: This has been accepted as Fan, L, "An Overview of Chinese Seafarers' Communicative Competence in English—Chinese seafarers' Perspectives" submitted at *TransNav'2017 Conference*, 21 to 23 June 2017.

Paper six: This has been under review as Fan, L and Fei, J and Schriever, U and Fan, S, "An Empirical Study on the Communicative Competence of Chinese Seafarers in the Context of building China into a Maritime Power", *Marine Policy*, ISSN: 0308-597X(2017).

Research question 2: To what extent does the communicative competence of Chinese seafarers affect their employment in the international maritime labour market?

Paper seven: This has been published as Fan, L and Fei, J and Schriever, U and Fan, S, "The Communicative Competence of Chinese Seafarers and their Employability in the International Maritime Labour Market". *Marine Policy*, 83 (2017), pp 137-145, ISSN: 0308-597X, DOI: 10.1016/j.marpol.2017.05.035.

Research question 3: What measures can be taken to improve maritime English education in China?

Paper eight: This has been under review as Fan, L and Fei, J and Schriever, U and Fan, S, "What is wrong with Maritime English Education in China?", *Marine Policy*, ISSN: 0308-597X(2017).

The four papers were presented in the following sections:



This section of chapter 4 has been removed for copyright or proprietary reasons.

It has been published as: Fan, L, "An Overview of Chinese Seafarers' Communicative Competence in English—Chinese seafarers' Perspectives" submitted at TransNav'2017 Conference, 21 to 23 June 2017.

#### 4.2. Empirical Evidence on the Communicative Competence of Chinese Seafarers

##### **An Empirical Study on the Communicative Competence of Chinese Seafarers in the Context of building China into a Maritime Power**

**Abstract:** As a response to the recent call for building China into a maritime power, China maritime safety administration endeavours to increase the competitiveness of Chinese seafarers in the international maritime labour market. Research suggests that one of the main barriers for Chinese seafarers to compete in the global maritime labour market is their insufficient English communication ability. Limited empirical research, however, has been conducted on examining the status of communicative competence of Chinese seafarers. Based on the established framework of communicative competence in the maritime context, this paper aims to develop and apply an instrument to measure the English communicative competence of Chinese seafarers according to their ages, educational qualifications, ranks and sea experiences. For this purpose, a questionnaire survey was made available online.

Participants were randomly selected through advertisements on popular gateway websites for seafarers. Twelve interviews with seafarers were also conducted to complement the questionnaire survey. Exploratory factor analysis was applied to identify the underlying relationships between variables in the measuring instrument for communicative competence in the maritime context. The findings of the study revealed that Chinese seafarers' communicative competence had a moderate correlation with their educational qualifications, and a strong correlation with their sea experience. However, no significant differences existed in communicative competence between the different age groups or ranks of seafarers. Using qualitative data from 12 interviews of Chinese seafarers, a discussion was given to explain the reasons behind these findings. Recommendations were made to improve the English communicative competence of Chinese seafarers.

**Keywords:** maritime manpower; competitiveness; international maritime labour market; effective communication; STCW 2010; maritime English; communicative competence; maritime education and training; multicultural and multilingual crew; Chinese seafarer

## 1. Introduction

In recent years, China has increasingly shifted its attention to maritime domain and called for much effort to build a maritime power. China has witnessed a growing dependence on seaborne energy trade to support its economic development (Len, 2015). Seafarers play a critical role in transporting seaborne cargoes to destinations safely, securely and efficiently. In the context of the 21<sup>st</sup> Century Maritime Silk Road Initiative in 2013, China maritime safety administration (CMSA) calls for more effort to improve the competitiveness of Chinese seafarers in the global maritime labour market.

The growth of maritime education and training in China far exceeds the expansion of the Chinese merchant fleet. The Chinese national merchant fleet achieved a total of 85% growth between 1996 and 2011 (Fei and Lu, 2015), while the increase in Chinese maritime student enrolments experienced a total of 813% during the similar time period of 2001 to 2010 (Fan et al., 2015b). Although there is an oversupply of seafarers in the domestic maritime labour market, the share of Chinese seafarers in the international maritime labour market has seen

little increase despite the nation's ambitions to improve this. There is only 5% of the total Chinese seafarers working on foreign vessels (Lee et al., 2014).

Research suggests that English deficiency of Chinese seafarers is one of the main barriers for them to compete in the global maritime labour market (Li, 2008). Some researchers believe that Chinese seafarers have improved their English ability due to much effort and investment made in improving maritime English education in China in the last two decades (Sakhuja, 2011, Tang et al., 2016). However, there is limited empirical research on the English level of Chinese seafarers. Furthermore, the prevailing multinational crewing requires a high level of English proficiency for seafarers (Trenkner and Cole, 2010c). English language deficiency itself is not the only factor that can lead to miscommunication on board. Other reasons, such as intercultural factors and psycholinguistic factors, can also create communication barriers (Fan et al., 2015b). Thus, communicative competence is actually a more appropriate term for measuring seafarers' ability to communicate within the maritime context.

The concept of communicative competence is relatively new in the maritime context, and there is a dearth of research that examines Chinese seafarers' communicative competence. This paper therefore first reviewed the development of the concept of communicative competence in a general context over the past decades. In view of the uniqueness of the seafaring workplace, five components of communicative competence were then adopted in the maritime context. Since there is no existing instrument to measure communicative competence in the maritime setting, a measurement instrument was developed and tested before examining Chinese seafarers' current communicative competence. This paper consists of 5 sections. In the following section: Section 2, the concept of communicative competence in a maritime context is discussed, and then the research method is given in Section 3, including the process of confirming the measurement of communicative competence in a maritime context. Section 4 presents with discussion the main results of the current status of Chinese seafarers' communicative competence, and lastly the conclusion and recommendation are provided in Section 5.

## **2. Communicative competence in the maritime context**

Since effective communication involves various human-related factors, technical advances in communication equipment on board cannot completely surmount the language barriers among multilingual and multicultural seafarers (Bakr, 1978, Moreby, 1990, Fan et al., 2015b). Seafarer communication failures not only occur in long or short distance communication via electronic devices, but they also happen in routine face-to-face communication (Trenkner, 2007). The Manila Amendments 2010 mandates effective oral communication among seafarers and puts the onus on every company to achieve this as a compulsory requirement for addressing an increased frequency of communication-related maritime incidents (IMO, 2011). In addition to the mastery of simplified international standard marine communication phrases (SMCP), seafarers' overall communicative competence has been of vital significance in modern shipping, i.e., linguistic competence, intercultural competence, psycholinguistic competence, strategic competence, and pragmatic competence (Fan et al., 2015b).

Savignon (1972) defines communicative competence as the overall ability to dynamically and appropriately communicate intentions and purposes using gained knowledge and skills in various circumstances. The knowledge of the language code, i.e., grammar, vocabulary, pronunciation and spelling, can be indicated by linguistic competence (Hymes, 1972b). Bachman (1990) extends the scope of linguistic competence by adding cohesive and rhetoric elements in textual contexts, such as the ability to construct logical sequences of ideas and conclude meaning from a text. Linguistic competence aims to ensure the understanding of the accurate literal meaning of the utterance by learners (Canale and Swain, 1980b).

The underlying abilities of interlocutors therefore become one of the most important factors contributing to successful communication (Rickheit and Strohner, 2008). These underlying abilities can be, for example, the interlocutors' psycholinguistic competence (Lennon, 1990). Psycholinguistic competence refers to the ability to communicate through a mental process in relation to the physical environment, such as one's cognitive, emotional, and behavioural environment (Rickheit et al., 2008). Sufficient knowledge of psychological variables, such as the knowledge of dealing with a new working environment and coping with hierarchy stress, can facilitate effective communication among multinational seafarers working in a confined space on board. The expression, interpretation and negotiation of meaning are all influenced

by the interlocutors' psycholinguistic competence (Savignon, 2002, Ho and Savignon, 2007, VanPatten, 2002).

Lepschy (2008) claims that communicative competence also includes the ability to interpret social cultures and behaviour in various speech contexts (Rickheit and Strohner, 2008, Lepschy, 2008). In research conducted by Ziarati et al., (2011), nearly three quarters of seafarers surveyed agreed that cultural differences between multicultural crewmembers were one of the biggest barriers to effective communication on board (Ziarati et al., 2011). Intercultural misunderstandings can result in tense interpersonal or intergroup relationships, distrust or conflicts (Ogbu, 1992) which can directly affect the safe operation of a whole ship.

Strategic competence in communication is especially essential for foreign language learners (Dörnyei and Thurrell, 1991). As such, strategic competence is of vital importance for multicultural seafarers since the majority of them are from non-native English speaking nations (Uchida and Takagi, 2012). Strategic competence shows the ability to apply verbal and nonverbal communication strategies to handle communication problems caused by a speaker's lack of linguistic knowledge or understanding of social behavioural norms (Taguchi, 2011). Strategic competence is most likely gained through experience in real-life communication situations rather than through simple practice in the classroom (Stern, 1978). Nonverbal communication strategies must be handled carefully since the same body movement may have different implications in different cultures.

Pragmatic competence is also regarded as one of the main components of communicative competence (Esther and Alicia, 2008). It refers to the ability of a non-native English learner to use the language in a social context to perform various communicative actions (Fraser et al., 1980) and it shows the ability to perform speech acts and language functions appropriately in a given social context (Esther and Alicia, 2008). Examples of speech acts and language functions are orders, warnings, greetings and requests which are very common onboard.

In many cases, speech acts are performed and interpreted differently by people from different cultures (Carla, 2012). Sociolinguistic and sociocultural awareness is essential for

second language learners, in order for them to acquire pragmatic competence (Lenchuk and Ahmed, 2014). Much communication practice and activities in and out of the classroom need to be carried out to improve non-native English speakers' pragmatic competence (Kasper, 1997). For second language learners, it is effective to improve pragmatic competence in a natural environment, for instance, by exposing them to the culture and the language outside of the classroom (Carla, 2012). Consequently, it is essential to frequently use English in daily life and work to improve pragmatic competence.

DeThorne et al. (2014) further suggest that the degree of success in communication is determined by multiple factors such as the environment, the relationships between interlocutors and the resources available to them. The seafaring workplace involves high risk and stress for seafarers, both in terms of the actual work undertaken and the physical environment on board. Seafarers face both psychosocial stress from isolation, loneliness and fatigue, and physical stress from noise and vibration on board (Jensen et al., 2009). Reichmann (1959) claims that this loneliness can be resulted from one's lack of communication with others. A lack of opportunity for interpersonal communication on board ships can also contribute to the psychosocial stress of seafarers (Oldenburg et al., 2010), and the cumulative stress can have a negative influence on mental and physical health (Mann and Holdsworth, 2003) which in turn can affect effective communication on board.

### **3. Methods**

Both quantitative and qualitative methods were applied in this research. The data were collected through an online questionnaire and semi-structured interviews. The questionnaire included four main parts: 1) the current status of the Chinese seafarers' communicative competence; 2) the relationship between the communicative competence of the Chinese seafarers and their employability in the international maritime labour market; 3) the current status of maritime English education and training in China; and 4) suggestions for improving Chinese seafarers' communicative competence. This paper mainly focused on the analysis of the first part, i.e., the perceptions of Chinese seafarers on their communicative competence. This part included 7 items about the demographic information of the Chinese seafarers and 35 items related to their communicative competence. The 35 items were modified from the

existing literature (Pillar, 2011, Rubin and Martin, 1994) and adapted to the maritime context. To investigate the current communicative competence of Chinese seafarers, self-assessment items were designed where participants of Chinese seafarers chose a value from a five-point Likert scale. Twelve interviews with Chinese seafarers were conducted to further explore qualitative information about their perceptions of communicative competence.

To recruit participants, advertisements were posted on public areas of popular websites for Chinese seafarers. The advertisements were reposted by website 'administrators' to recruit sufficient numbers of respondents. Random sampling, confidentiality and anonymity were maintained throughout the data collection process. The questionnaire was made available online for eight months. The interview participants were randomly selected from the participants in the questionnaire who volunteered to participate.

Since there is no existing instrument available to measure seafarers' communicative competence, the measurement instrument for this study was developed by the authors, based on literature about communicative competence (Canale and Swain, 1980b, Rubin and Martin, 1994, Hymes, 1972b). To verify all underlying correlations between the measuring items of communicative competence, exploratory factor analysis (EFA) using the Statistical Packages for Social Science (SPSS) was conducted (Pallant, 2016). In this paper, EFA enabled 35 measuring items for communicative competence to be extracted to a smaller set of components, and it provided a factor loading for each item. With the factor loading of each item, a mean of communicative competence was calculated. The analysis was performed based on the extraction method of principal axis factoring (PAF) and the rotation method of Promax with Kaiser Normalisation (Hori et al., 2011).

Since reliability and validity are key indicators of the quality of a measurement instrument as well as the crucial component of research quality (Kimberlin and Winterstein, 2008), the internal reliability analysis was calculated to obtain Cronbach's Alpha ( $\alpha$ ). The internal reliability indicates the degree to which the measuring items correlate with each other in measuring their latent constructs (Awang, 2012). In this study, the Cronbach's Alpha ( $\alpha$ ) values indicate the internal consistency of the measurement instrument of communicative



competence. Besides, both convergent validity and discriminant validity were verified to establish construct validity. The convergent validity provides evidence that the items of each construct converge on the same construct by computing the Average Variance Extracted (AVE) for every construct while the discriminant validity provides evidence that discriminations exist between different construct by calculating the correlation between underlying constructs (Bagozzi et al., 1991). In this study, the convergent validity and discriminant validity can be supported by the evidence that not only all measuring items are related to their corresponding components of communicative competence but also each component is discriminative. Based on the newly established measurement instrument of communicative competence in the maritime context, an ANOVA (Analysis of Variance) was then applied to examine the variances in communicative competence between seafarers with different attributes i.e., age, rank, educational qualification, and sea experience.

#### **4. Results and discussions**

##### **4.1. General information of the participants**

A total of 1,989 participants viewed the online questionnaire, and 251 of them completed the questionnaire. Sixteen responses had more than 50% of the data missing and therefore were discarded. The remaining 235 responses were used for data analysis. For a large target population, 100-200 responses are acceptable under most assumptions and parameters for survey research (Bennekorn, 2003). As indicated in Table 1, about 58% of the 235 Chinese seafarers held an advanced diploma, and 18% of them had a bachelor's degree. Most of the seafarers were in the age groups of 18-25 and 26-40, accounting for 42% and 51% respectively. Around 60% of the seafarers were in operational level positions (i.e. cadets, third/second officers and fourth/third engineers). Chinese seafarers are not willing to work long at sea and most of them quit from the seafaring career within 10 years (Yao et al., 2017). With a high drop-out rate of seafarers (Fei and Lu, 2015), it is possible for only a small portion of Chinese seafarers have the opportunities to reach a management level. As such, Chinese seafarers are relatively young and engaging the work at the operation level. This is also reflected by the overwhelming distribution of young respondents. 32% of the seafarers had sea experience working on foreign vessels. The composition of the respondents was considered

representative of the current Chinese seafarer workforce in terms of age, rank, educational qualification, and sea experience.

**Table 1. General information of respondents**

| Attributes  | Sub-attributes                | Percentage |
|---|-------------------------------|------------|
| Educational qualification                               | High school Certificate       | 16.47%     |
|   | Advanced diploma              | 58.03%     |
|   | Bachelor                      | 18.47%     |
|   | Master degree                 | 7.03%      |
| Age (years old)   | 18-25                         | 42.11%     |
|   | 26-40                         | 51.42%     |
|   | 41-55                         | 6.28%      |
|   | 56 and above                  | 0.20%      |
| Ranks of seafarers                                      | Captain / Chief Engineer      | 7.87%      |
|   | Chief officer/second engineer | 14.52%     |
|   | Second officer/third engineer | 20.66%     |
|   | Third officer/fourth engineer | 23.21%     |
|   | Cadet                         | 17.23%     |
|   | Rating                        | 9.15%      |
| Whether or not have working experience on foreign ships | others                        | 7.36%      |
|   | Yes                           | 32.00%     |
|   | No                            | 68.00%     |

Source: Own Compilation

#### 4.2. Exploratory factor analysis of the measurement of communicative competence

The results of EFA using PAF and the Promax with Kaiser Normalisation are shown in Table 2. The Kaiser-Meyer-Olkin value is 0.931, exceeding the recommended value of 0.6 (Pallant, 2016), and the Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance ( $p=0.000$ ), showing that the results supported the factorability of the correlation matrix. The Principal Axis Factoring analysis shown in Table 2 revealed that the five components, with eigenvalues exceeding 1, explained a cumulative percentage of 63.12% of the variance. This exceeds the common cumulative percentage of 50-60% (Pallant, 2016).

**Table 2. Summary of Exploratory factor analysis**

| KMO and Bartlett's Test                          |                     |                    |            |                            |          |                               |       |
|--|---------------------|--------------------|------------|----------------------------|----------|-------------------------------|-------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                     |                    |            | .931                       |          |                               |       |
| Bartlett's Test of Sphericity                    |                     | Approx. Chi-Square |            | 5458.442                   |          |                               |       |
|  |                     | df                 |            | 435                        |          |                               |       |
|  |                     | Sig.               |            | .000                       |          |                               |       |
| Total Variance Explained                         |                     |                    |            |                            |          |                               |       |
| Factor   | Initial Eigenvalues |                    |            | Extraction Sums of Squared |          | Rotation Sums of              |       |
|  |                     |                    |            | Loadings                   |          | Squared Loadings <sup>a</sup> |       |
|  |                     | % of               | Cumulative | Total                      | % of     | Cumulative                    | Total |
|  | Total               | Variance           | %          |                            | Variance | %                             |       |
| 1  | 12.737              | 42.456             | 42.456     | 12.396                     | 41.319   | 41.319                        | 8.995 |
| 2  | 3.470               | 11.567             | 54.023     | 3.174                      | 10.579   | 51.898                        | 9.340 |

As for the pattern matrix of EFA shown in Table 3, observed variables (e.g. response items) with loading values of 0.3 and above or -0.3 and below are acceptable for factor analysis (Hori et al., 2011, Pallant, 2016, Abedin et al., 2010). Besides, items cross-loaded with less than a 0.2 difference between factors are to be deleted (Thurstone, 1947a).

**Table 3. Pattern Matrix of EFA of 35 items for the measurement**

| Response items   | Factor |      |       |   |   |
|--|--------|------|-------|---|---|
|  | 1      | 2    | 3     | 4 | 5 |
| I1. Daily English listening ability  | .967   |      |       |   |   |
| I2. Maritime English listening ability   | .942   |      |       |   |   |
| I3. Maritime English speaking ability  | .923   |      |       |   |   |
| I4. Maritime English reading ability   | .874   |      |       |   |   |
| I5. Daily English speaking ability   | .867   |      |       |   |   |
| I6. Daily English reading ability  | .848   |      |       |   |   |
| I7. Maritime English writing ability   | .699   |      |       |   |   |
| I8. Daily English writing ability  | .673   |      |       |   |   |
| I9. I have some knowledge of foreign cultures  |        | .981 |       |   |   |
| I10. When communicating with foreign seafarers, I will be aware of their cultural differences.               |        | .927 |       |   |   |
| I11. I know some celebrities or famous tourist sites in foreign countries                                    |        | .889 |       |   |   |
| I12. I am willing to share Chinese culture with foreign seafarers  |        | .599 |       |   |   |
| I13. I tend to learn foreign cultures by communicating with foreign seafarers.                               |        | .555 |       |   |   |
| I14. I can use simple greetings in more than two foreign languages   |        | .476 |       |   |   |
| I15. I tend to communicate in English with shipmates to relieve depression when I cannot use my own language |        |      | 1.188 |   |   |

|   |                 |                 |                                 |
|---|-----------------|-----------------|---------------------------------|
| I16. I tend to communicate in English with shipmates to relieve homesickness when I cannot use my own language                |                 | .964            |                                 |
| I17. I tend to communicate in English with shipmates to relieve work stress when I cannot use my own language                 |                 | .951            |                                 |
| <del>I18. I feel confident in communicating in English with other seafarers</del>   | <del>.311</del> | <del>.387</del> |                                 |
| I19. I tend to learn their work style by communicating with them  |                 | .371            |                                 |
| I20. I tend to actively greet foreign seafarers on board  |                 | .363            |                                 |
| I21. I will not pay undue attention to grammatical mistakes when communicating in English                                     |                 | .359            |                                 |
| <del>I22. I can remain calm when communicating in English in emergency</del>  | <del>.346</del> | <del>.356</del> |                                 |
| <del>I23. I tend to speak English with Chinese seafarers when foreign seafarers are present</del>                             | <del>.331</del> | <del>.351</del> |                                 |
| I24. I often write in English   |                 | .917            |                                 |
| I25. I often read materials in English  |                 | .886            |                                 |
| I26. I often speak English on various occasions   |                 | .793            |                                 |
| I27. I tend not to speak Chinese with shipmates whenever I can  |                 | .592            |                                 |
| I28. I often watch original English movies or listen to English songs   |                 | .520            |                                 |
| I29. I often seek opportunities to practice English with foreigners   |                 | .418            |                                 |
| <del>I30. I have a sense of humour in communication</del>   |                 | <del>.329</del> | <del>.312</del>                 |
| I31. I tend to seek alternatives to explain my ideas when the conversation is stuck   |                 |                 | 1.035                           |
| I32. I tend to use body language when communication difficulties occur  |                 |                 | .942                            |
| I33. I tend to use simple English for communication rather than complicated one   |                 | -.338           | .746                            |
| I34. I tend to communicate in an indirect way to avoid any offensiveness  |                 |                 | .390                            |
| <del>I35. I have learned some basic strategic communication skills (for example, showing interests in partners' topics)</del> |                 | <del>.225</del> | <del>.257</del> <del>.278</del> |

Extraction Method: Principal Axis Factoring.  
Rotation Method: Promax with Kaiser Normalization.  
a. Rotation converged in 7 iterations.  
Factor 1: linguistic competence (I1 – I8), accounting for 41.3% of the variance  
Factor 2: intercultural competence (I9 – I14), accounting for 10.6% of the variance  
Factor 3: psycholinguistic competence (I15 – I17, I19 – I21 ), accounting for 4.8% of the variance  
Factor 4: pragmatic competence (I24 – I29), accounting for 3.9% of the variance  
Factor 5: Strategic competence (I31 – I34), accounting for 2.5% of the variance

Source: Own Compilation

Table 3 reveals that all items have loading values of more than 0.3, or less than -0.3, in the correlation matrix except for Item 35 (I35), with a loading value of less than 0.3. Due to its weak correlation to all five factors, the item was deleted with a strikethrough line shown in the table. The cross-loaded items with less than 0.2 differences between factor loadings were also deleted, namely, I18, I22, I23 and I30.

#### 4.3. Validity and Reliability of the measurement

For the convergent validity, the value of AVE greater than 0.5 is required for every construct (Awang, 2012). Discriminant validity requires that the correlation between underlying constructs should not be greater than 0.85 (Voorhees et al., 2016). As presented in Table 5, all the AVE values of the five components are greater than 0.50, suggesting that convergent validity is supported. The convergent validity is reflected by the high factor loadings (>0.50) and P values (<0.001), suggesting all measuring items are significantly important to their corresponding constructs. From Figure 2 in section 4.3, the discriminant validity was verified by checking the underlying constructs correlation values which are all less than the cut-off value of 0.85.

For the internal consistency reliability, the value of  $\alpha$  greater than 0.7 can be expected if the number of items in each construct exceeds 3 (Wessmann et al., 2014) and the values above 0.8 are preferable (Pallant, 2016). The numbers of each construct in this research all exceed 3. As shown in Table 5, the Cronbach's Alpha value for each construct is above 0.70, indicating a good reliability of the measurement for Chinese seafarers' communicative competence. Therefore, the model is adequately fit for further analysis.

**Table 5. Cronbach's Alpha and AVE values for each construct**

| Underlying Construct Measuring Items |   | Factor loading | P-Value | Alpha (> 0.70) | AVE (> 0.50) |
|--------------------------------------|---|----------------|---------|----------------|--------------|
| <b>Linguistic competence</b>         | Daily English listening ability   | 0.79           | <0.001  | <b>0.949</b>   | <b>0.677</b> |
|                                      | Daily English speaking ability  | 0.82           | <0.001  |                |              |
|                                      | Daily English reading ability   | 0.81           | <0.001  |                |              |
|                                      | Daily English writing ability   | 0.71           | <0.001  |                |              |
|                                      | Maritime English listening ability  | 0.85           | <0.001  |                |              |
|                                      | Maritime English speaking ability   | 0.87           | <0.001  |                |              |
|                                      | Maritime English reading ability  | 0.90           | <0.001  |                |              |
|                                      | Maritime English writing ability  | 0.82           | <0.001  |                |              |
| <b>Intercultural competence</b>      | I have some knowledge of foreign cultures   | 0.71           | <0.001  | <b>.866</b>    | <b>0.595</b> |
|                                      | When communicating with foreign seafarers, I will be aware of their cultural differences.               | 0.89           | <0.001  |                |              |
|                                      | I know some celebrities or famous tourist sites in foreign countries                                    | 0.73           | <0.001  |                |              |
|                                      | I am willing to share Chinese culture with foreign seafarers  | 0.88           | <0.001  |                |              |
|                                      | I tend to learn foreign cultures by communicating with foreign seafarers.                               | 0.80           | <0.001  |                |              |
|                                      | I can use simple greetings in more than two foreign languages   | 0.57           | <0.001  |                |              |
|                                      | I tend to communicate in English with shipmates to relieve depression when I cannot use my own language | 0.82           | <0.001  |                |              |
| <b>Psycholinguistic competence</b>   |   |                |         | <b>.903</b>    | <b>0.610</b> |

|                             |  |      |        |             |              |
|-----------------------------|--|------|--------|-------------|--------------|
|                             | I tend to communicate in English with shipmates to relieve homesickness              | 0.78 | <0.001 |             |              |
|                             | I tend to communicate in English with shipmates to relieve work stress               | 0.84 | <0.001 |             |              |
|                             | I tend to learn their work style by communicating with them                          | 0.83 | <0.001 |             |              |
|                             | I tend to actively greet foreign seafarers on board                                  | 0.79 | <0.001 |             |              |
|                             | I will not pay undue attention to grammatical mistakes when communicating in English | 0.60 | <0.001 |             |              |
| <b>Pragmatic competence</b> | I often write in English   | 0.79 | <0.001 | <b>.893</b> | <b>0.636</b> |
|                             | I often read materials in English  | 0.86 | <0.001 |             |              |
|                             | I often speak English on various occasions   | 0.85 | <0.001 |             |              |
|                             | I often watch original English movies or listen to English songs                     | 0.74 | <0.001 |             |              |
|                             | I often seek opportunities to practice English with foreigners                       | 0.74 | <0.001 |             |              |
| <b>Strategic competence</b> | I tend to seek alternatives to explain my ideas when the conversation is stuck       | 0.81 | <0.001 | <b>.794</b> | <b>0.530</b> |
|                             | I tend to communicate in an indirect way to avoid any offensiveness                  | 0.63 | <0.001 |             |              |
|                             | I tend to use body language when communication difficulties occur                    | 0.76 | <0.001 |             |              |
|                             | I tend to use simple English for communication rather than complicated one           | 0.70 | <0.001 |             |              |

Source: Own Compilation

#### 4.4. The current status of the communicative competence of Chinese seafarers

##### 4.4.1. The overall communicative competence of Chinese seafarers

There is a dearth of research that attempts to deal with the communicative competence of Chinese seafarers which involves all the five components described above. Most of them only focus on the linguistic (Theotokas and Progoulaki, 2007) and intercultural competences (Wang and Gu, 2005). This section provides a comprehensive picture of communicative competence of Chinese seafarers, comprising all five aspects as identified from the literature.

Table 4 shows the mean scores of the five components of communicative competence assessed on the five-point Likert scale. Since they were positively framed from 1 to 5, the level of 'agreement' or 'assessment' could partly reflect the level of communicative competence. By comparison, the Chinese seafarers were relatively weak in linguistic and pragmatic competence with means of 3.07 and 3.08 respectively, and they received a relatively higher mean in their strategic competence (3.97). Around 30% of the respondents believed that they had poor or very poor linguistic and pragmatic competences, while around 6% of them considered that their strategic competence was poor. The percentages of those who regarded

their intercultural competence and psycholinguistic competences as poor were a little higher, accounting for 16.15% and 18.76% respectively. Overall, the mean score (3.18) of the communicative competence of the Chinese seafarer indicated a fair level on the five-point Likert scale.

Table 4. Scores of components of communicative competence

|                                    | Min. | Max. | Mean   | Std. Deviation | Std. Error Mean |
|------------------------------------|------|------|--------|----------------|-----------------|
| <b>Communicative competence</b>    | 1    | 5    | 3.1839 | .67492         | .04403          |
| <b>Linguistic Competence</b>       | 1    | 5    | 3.0715 | .79635         | .05195          |
| <b>Intercultural Competence</b>    | 1    | 5    | 3.4303 | .76760         | .05007          |
| <b>Psycholinguistic Competence</b> | 1    | 5    | 3.3555 | .85078         | .05550          |
| <b>Pragmatic Competence</b>        | 1    | 5    | 3.0799 | .91405         | .05963          |
| <b>Strategic Competence</b>        | 1    | 5    | 3.9732 | .58533         | .03818          |

Source: Own Compilation

Around 30% of respondents agreed that they had good communicative competence. The lowest score of linguistic competence for the Chinese seafarers conformed with the finding that the biggest barrier to communication was their lack of English linguistic ability (Wang and Gu, 2005). According to interviews with Chinese seafarers, the main reason for their weak linguistic competence is that they received insufficient linguistic training at their maritime education and training institutes.

Furthermore, as one interviewee stated, 'the English knowledge learned is useless for my job except for some vocabulary and abbreviations and most of the time was spent preparing for the impractical maritime English exams.' Intercultural awareness training for seafarers is greatly neglected as well, since it has not been incorporated in the maritime English teaching and learning curriculum or in the test syllabus (MSA, 2012, Wang and Gu, 2005). It is underreported in literature that Chinese seafarers have a psychological barrier to English communication. As one seafarer claimed, 'most of us are poor in English and afraid of speaking English due to shyness and lack of confidence.' Lack of confidence in practicing in English in their daily life and work also affects their pragmatic competence.

The well-known 'dumb English' learned by Chinese seafarers (Yang, 2015) can be attributable to their learning of it without sufficient practice. The 'dumb English' is a phenomenon that

students can read English but cannot speak it well. A lack of English speaking environment can also contribute to 'dumb English' (Liang and Xu, 2013). In China, an English speaking environment is greatly limited to an English classroom. Less than half of respondents of Chinese seafarers in this study practiced speaking in English in their daily life and work. Nowadays, it is very convenient for student to practice listening skills with abundant online listening materials. However, only 50% of the respondents often watched English movies or listen to English programs. Except in English classes, much less respondents practiced reading and writing in English, accounting for 37% and 29% respectively. Without sufficient writing practice, it is not surprising that only around 10% of respondents in this research believed that they were good at writing in English.

#### **4.4.2. Comparison of communicative competence across seafarer categories**

The composition of the Chinese seafarers was divided in terms of their ranks, ages, educational qualifications and sea experiences to verify whether there exists a significant difference across each category. The ANOVA Test was applied for this purpose. Generally, the higher the rank of a seafarer, the more communicatively competent she/he is. However, Table 5 shows that there was no statistically significant difference in seafarer communicative competence across the category of seafarer ranks (Sig .238 >.05).

As one chief officer claimed, listening and speaking skills are the most important for officers to work on foreign ships. Instead of oral communication ability, reading ability is greatly emphasised in maritime English education and training in China. Regardless of ranks, Chinese seafarers received similar exam-oriented and teacher-centred maritime English education and training. Since an English speaking environment cannot even be guaranteed in an English classroom, the development of oral communication ability for all ranks of seafarers might be greatly constrained. As such, all ranks of Chinese seafarer could be 'dumb English' learners due to the lack of English speaking practice.

This result is echoed by the finding that there was no significant difference in communicative competence across different age groups (Sig .343 >.05). Longer sea time does not result in



improved communicative competence of Chinese seafarers if they do not often use English.

A second officer stated his concern:

There exist English communication barriers on board mainly due to poor listening and speaking ability. It is difficult to communicate in English at work. There is limited daily communication with foreign seafarers on board due to the language problem. If I cannot understand foreign seafarers' speaking, I normally keep silent.

Since the salary advantage of Chinese seafarers over shore workers gradually diminishes, it is difficult to source maritime students from coastal cities. Currently, most maritime students, accounting for 69.91%, were sourced from rural areas (Qiang, 2014) where they received relatively low quality English education (Teng and Qu, 2014). As such, younger generation of Chinese seafarers may do not have an advantage over older generation in terms of English proficiency.

**Table 5. ANOVA test of communicative competence across each category**

|   | Null Hypothesis  | Test                                    | Sig. | Decision                   |
|---|--|---|------|----------------------------|
| 1 | <b>The distribution of communicative competence is the same across categories of seafarer rank</b>             | Independent-Samples Kruskal-Wallis Test | .238 | Retain the null hypothesis |
| 2 | <b>The distribution of communicative competence is the same across categories of educational qualification</b> | Independent-Samples Kruskal-Wallis Test | .000 | Reject the null hypothesis |
| 3 | <b>The distribution of communicative competence is the same across categories of age</b>                       | Independent-Samples Kruskal-Wallis Test | .343 | Retain the null hypothesis |
| 4 | <b>The distribution of communicative competence is the same across categories of sea experience</b>            | Independent-Samples Kruskal-Wallis Test | .000 | Reject the null hypothesis |

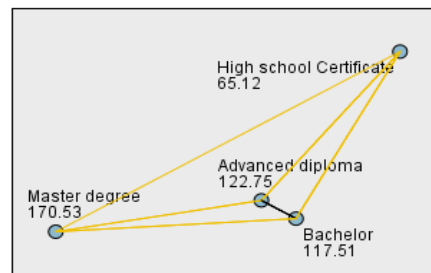
Source: Own Compilation

In contrast, Table 5 shows that a significant difference in communicative competence was found in at least one pair of groups of seafarers in terms of their educational qualifications (Sig .000 <.05). To find out the pairs in which significant differences occurred, pairwise comparisons with Post-Hoc Analysis were conducted (Cunningham and Aldrich, 2011).

An examination using the Scheffe post-hoc analysis revealed that five mean comparisons (highlighted in Figure 1) were significantly different. The result shows that the Chinese seafarers who had received tertiary education were more communicatively competent in English than those who had not. This is probably due to the fact that the English requirement for tertiary education is higher than non-tertiary education

However, within the tertiary education system itself in China, no significant difference in communicative competence was found between seafarers who had a bachelor's degree (4-year program) and those with an advanced diploma (3-year program). This is probably due to the fact that maritime English education and training are quite similar across the tertiary maritime education in China, i.e., applying similar instruction methods, using same teaching materials and the same examinations system. Compared to non-degree maritime graduates, degree maritime graduates with better English proficiency are more competitive for securing jobs ashore. Qiang (2014) finds that only 5% of Chinese maritime graduates considered seafaring as a lifelong Profession and most of them prefer to seek job ashore in the short and medium term.

## Pairwise Comparisons of What is your educational qualification?



Each node shows the sample average rank of What is your educational qualification?.

| Sample1-Sample2                          | Test Statistic | Std. Error | Std. Test Statistic | Sig. | Adj.Sig. |
|--|----------------|------------|---------------------|------|----------|
| High school Certificate-Bachelor         | -52.390        | 15.928     | -3.289              | .001 | .006     |
| High school Certificate-Advanced diploma | -57.626        | 13.870     | -4.155              | .000 | .000     |
| High school Certificate-Master degree    | -105.409       | 20.766     | -5.076              | .000 | .000     |
| Bachelor-Advanced diploma                | 5.236          | 11.284     | .464                | .643 | 1.000    |
| Bachelor-Master degree                   | -53.019        | 19.136     | -2.771              | .006 | .034     |
| Advanced diploma-Master degree           | -47.783        | 17.461     | -2.737              | .006 | .037     |

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

Figure 1: Pairwise comparison of communicative competence across educational qualifications

Table 5 also shows that there was a significant difference in communicative competence between the two groups of seafarers with different sea experience (Sig .000 <.05), i.e., Chinese seafarers who had worked on foreign vessels were significantly more communicatively competent than those who had not. This can be explained by the following two statements. One is that Chinese seafarers can improve their communicative competence well when working in an English speaking and multicultural environment, and the other is that the requirement on English communicative competence is higher for those working on foreign ships. As one third officer interviewed stated:

I am lucky that I can work on foreign ships. The multilingual and multicultural working environment on board has greatly helped me improve my communicative competence. On the first ship, I hardly understood others' English no matter whether they were from Europe or Philippines. It took me a few months to get

used to their English. Once understanding others, I began to speak more and became competent gradually. If my classmates had such opportunities to work on foreign ships, I believe they could also make it since they have gained the foundation of English knowledge. The key is that they need to use it in practice.

Chinese seafarers do not speak English to each other on board Chinese vessels manned with only Chinese seafarers. This results in insufficient practice of English and, in turn, this can affect pragmatic competence. The English communication ability of Chinese seafarers must be assessed by foreign employers in their job interviews. When being asked about the recruitment process, this seafarer continued:

It is very hard to pass the job interview because the whole interview is carried out in full English. Not only do you need to understand the English questions from the interviewer, but also you must answer the questions in English. Most of us can understand nautical knowledge in Chinese, but it is really difficult for us to express it in English.

This finding is echoed by the fact that less than 10% of Chinese seafarers have work experiences on foreign ships and most of them were employed in southeast Asian countries (MOT, 2015). The recruitment interviews by foreign employers have been the bottleneck for Chinese seafarers to secure employment in the international maritime labour market.

## **5. Conclusion and recommendation**

In conclusion, the English communicative competence of Chinese seafarers generally did not vary significantly across either their ranks or ages. However, there was a significant difference across the categories of educational qualifications and sea experiences. Chinese seafarer communicative competence can be significantly improved by working on foreign ships. The linguistic competence of Chinese seafarers, especially their writing ability, was the weakest area in their communicative competence. The insufficient practice of English, especially interactive communication practice, contributed to their communication deficiency. Despite increased requirements for communication ability of seafarers at an international level in the past decades, Chinese seafarers were relatively weak in linguistic, pragmatic and psycholinguistic competencies in English.

The teacher-centred and exam-oriented maritime English teaching mode used in China cannot meet the ever increasing requirements for maritime English. Instead of passively teaching English for preparing learners for exams, maritime English teachers need to place great importance on encouraging and facilitating interactive communication in English. Students should be encouraged to speak English and learn from mistakes. Both maritime teachers and maritime students need to take initiatives to practise English and to create an English learning and teaching environment. For example, some maritime subjects can be taught in English or bilingually. A few native English-speaking teachers with maritime knowledge can be invited to teach maritime oral English. In addition, since intercultural competence is largely neglected in maritime English teaching and learning in China (Wang and Gu, 2005), it is imperative to incorporate multicultural elements into China's maritime English teaching and testing syllabi.

Maritime education and training institutes in China play a vital role in changing the current predicament in maritime English education. It is essential for them to communicate and cooperate with the China Maritime Safety Administration, shipping companies and manning companies involved to improve the communicative competence of Chinese seafarers. Since most Chinese seafarers do not often use English on board Chinese ships, continuous learning and practice in English after graduation cannot be underestimated for improving their communicative competence. It is essential for Chinese maritime students to acquire self-learning abilities at their maritime education and training institutes. To facilitate self-learning, online maritime English learning platforms are helpful to cater for the learning needs of Chinese seafarers.

Since some survey respondents tend to overestimate or underestimate their performance (Boud and Falchikov, 1989), the respondents' self-evaluation data in this study might not provide an accurate picture of their communicative competence. Further research needs to be carried out to understand Chinese seafarers' communicative competence from other perspectives, e.g. from the perspectives of maritime English instructors and their employers. Bias may also exist due to the fact that some seafarers do not use the internet, especially the older generation of seafarers, and thus were not represented in the survey.

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#### 4.3. The Role of Communicative Competence in Employability

### **The Communicative Competence of Chinese Seafarers and Their Employability in the International Maritime Labour Market**

**Abstract:** In the past two decades, the seafarer workforce in China has been growing at a much faster pace than that of the Chinese merchant fleet, resulting in an oversupply of seafarers in the domestic market. As one of the major seafarer suppliers in the world, China still faces great challenges to assign Chinese seafarers to the international maritime labour market. Although literature claims that a lack of English communication ability of Chinese

seafarers is one of the main barriers for them to compete with seafarers of other nationalities for job opportunities, there is little empirical research to substantiate such claim. To fill this gap, this paper aims to investigate: 1) employers' views on the current level of Chinese seafarers' communicative competence; and 2) to what extent their communicative competence correlates with their employability in the international maritime labour market. To achieve the research objectives, a questionnaire survey relating to factors affecting the employability of Chinese seafarers on foreign ships was conducted. Interviews were carried out with employers who had been recruiting seafarers in China. The findings show that English communicative competence is among the top determinants for seafarers to be employed on foreign ships. Most employers believe that there has been a declining trend in the communicative competence of Chinese seafarers over the last decade. Employers interviewed agree that a high priority should be placed on the improvement of quality of maritime English teachers.

**Keywords:** communicative competence, effective communication, maritime English, multicultural and multilingual crew, Chinese seafarers, shipowners, crew management, maritime education and training

## 1. Introduction

In the last two decades, China has witnessed a dramatic increase in the number of seafarers in the domestic maritime labour market as a result of the fast expansion of maritime education and training (MET) capacity. The oversupply of seafarers in the domestic market has further worsened the situation of an already high wastage of maritime graduates (Fei and Lu, 2015). In the same period, the global demand for seafarers has also increased considerably. The expanded world merchant fleet and the retirement of seafarers from traditional maritime nations have resulted in a significant shortage of qualified officers (BIMCO/ISF, 2015). While an increasing number of seafarers have been recruited from the Far East, the Indian sub-continent and Eastern Europe, the share of Chinese seafarers in the international maritime labour market remains almost unchanged, accounting for only about 8% (Fan et al., 2015b).

Although China endeavours to increase its share in the international maritime labour market

(Fei and Lu, 2015), literature suggests that a lack of English proficiency is one of the main barriers for Chinese seafarers to work on foreign ships (Eadie, 2000, Magramo et al., 2013, Dirgayasa, 2014, Zhang et al., 2008b, Huang, 2009). However, there is a dearth of empirical research examining Chinese seafarers' communicative competence from their employers' perspectives and how this may have impeded them from competing with other nationalities in the international maritime labour market.

The paper is organised as follows. Firstly, it will review the literature dealing with factors affecting seafarers' employability in general. Secondly, using a mixed method approach, it will investigate the importance of communicative competence as a criterion which influences the employability of Chinese seafarers in the global maritime labour market. Thirdly, it will examine and discuss the current level of Chinese seafarers' communicative competence from their employers' perspectives. Finally, suggestions will be made to improve Chinese seafarers' communicative competence.

## **2. A review of factors affecting seafarers' employability**

### **2.1 The concept of employability**

Employability is the ability to gain and maintain fulfilling work to achieve individual potential through sustainable employment (Hillage and Pollard, 1998). The term is generally short for 'employability skills and attributes' (McQuaid and Lindsay, 2005). The concept of employability has stimulated the research on the establishment of a model of employability. Although different terms have been used, for example, personal adaptability (Fugate et al., 2004), individual factors (McQuaid and Lindsay, 2005), skills and understanding (Yorke and Knight, 2006), and generic skills and degree (Pool and Sewell, 2007), these terms share similar constituents. Employability skills and attributes involve personal qualities (positive work attitude, adaptability, initiative, self-confidence, willingness to learn and stress tolerance), core skills (interpersonal and communication skills, global awareness, critical analysis, information retrieval and self-management) and process skills (computer literacy, ability to work multi-culturally, problem solving, teamwork and decision making) (Yorke and Knight, 2006). Besides, career identity (Fugate et al., 2004) or career development learning (Pool and Sewell, 2007) are added to show the important role of personal goals or aspirations in

individuals' employability. In addition, the 'CareerEDGE' model proposed by Pool and Sewell (2007) includes work experience and psychological aspects. Orence and Laguador (2013) distinguish learned value (communication skill, information technology skill, Human relation skill, problem solving skill and critical thinking skill) from work value (perseverance and hard work, honesty and love for truth, professional integrity, obedience to superiors, efficiency, punctuality and courage, fairness and justice). McQuaid and Lindsay (2005) expand the concept of employability from individual factors to external factors and personal circumstances. External factors refer to the demand of the labour market, conditions of work or recruitment criteria while personal circumstances indicate responsibilities to family, access to social capital or work culture in the wider community (McQuaid and Lindsay, 2005). Consequently, the comprehensive picture of employability covers issues like knowledge and skills, individual attributes, work experience, career identity, emotional intelligence, personal circumstances and external factors.

In the case of the seafaring profession, which can be described as being skill based, high risk and high responsibility, the employability skills and attributes of mariners include subject matter knowledge, communication skill, adaptation to a multi-cultural environment, problem solving skill, sense of responsibility, leadership and teamwork skill, indefatigable spirit, prudence and foresight, situational awareness skill and physical fitness (Kabir, 2014). Among these skills and attributes, communication skill becomes one of the prerequisites for high quality seafarers (Kabir, 2014). It is regarded as the essential ability of the engineering graduates in their job placement while leadership, hard work and professional integrity are identified as contributory attributes to their present employment (Chavez et al., 2016). As for the employability factors, seafarers from different countries may have their different strengths and weaknesses due to various national conditions and educations.

## **2.2 Factors affecting Chinese seafarers' employability on foreign ships**

The prevalence of Flags of Convenience (FOCs) and China's open door policy have made it possible for Chinese seafarers to work on foreign vessels since the end of the 1970s (Li and Wonham, 1999b). The fast growing number of Chinese seafarers between the late 1980s and early 2000s made some scholars optimistic about China's seafarer workforce helping to

alleviate the global shortage of seafarers (Li and Wonham, 1999b). However, in spite of China's huge population base, large MET capacity, an increased oversupply of seafarers (Zhang and Zhao, 2015) and its ambition to increase its share in the international maritime labour market (Tang et al., 2016), Chinese seafarers, especially senior officers, have retained a smaller share in the international maritime labour market when compared to the Filipinos (Fan et al., 2015b). Wu et al. (2013) and Tang et al. (2016) attribute the small market share to China's regulatory restrictions placed on the mobility of Chinese seafarers resulting in foreign shipping employers being unable to directly recruit Chinese seafarers but only indirectly through Chinese licensed crewing agencies. The mobility of Chinese seafarers is further restricted in that their certificates are often withheld by Chinese crewing agencies when seafarers are on leave. This practice was prevalent in the booming shipping cycle where seafarers of all levels were in shortage. Seafarers were restricted to work for companies other than their employers who originally employed them and had long-term contracts with them (Zhao, 2011). This also limited their opportunities of being employed by foreign shipping companies.

Other contributory factors include Chinese seafarers' insufficient English ability, lack of loyalty and consistency and cultural incompatibility (Li and Wonham, 1999b, Tang et al., 2016) which can affect their employability in the multicultural working environment on board (Lu et al., 2012, Tang et al., 2016). Due to their English deficiency, Chinese seafarers do not mix well with other nationalities but tend to work as a team of single nationality on board (Tang et al., 2016). As one of the key obstacles for them to be employed on foreign ships, Chinese seafarers' weakness in English communication can hardly be rectified without proper training (Zhao, 2011). Some literature also indicates that lack of English communication skills is no longer a barrier for Chinese seafarers to be integrated into the international maritime labour market due to a greater stress on maritime English education and training in China (Sakhuja, 2011). Although various measures and initiatives taken by China Maritime Safety Administration (CMSA) since 1990s and some improvement has been made in English proficiency, there is no empirical evidence to show the degree of improvement in Chinese seafarers' English communication competence (Tang et al., 2016).

The abovementioned English language deficiency found in the literature is a very general claim since there are many contributing factors to communication failures. The ubiquity of multiculturalism in the seafaring community makes English communication in the maritime context complicated (Iakovaki and Progoulaki, 2010). The mastery of simplified international standard marine communication phrases (SMCP) is no longer sufficient for seafarers' communication at sea (Sampson and Zhao, 2003). The level of linguistic and intercultural competences of seafarers can influence foreign shipowners' decisions regarding crewing strategies (Iakovaki and Progoulaki, 2010). Furthermore, Fan et al. (2015b) claim that communicative competence of seafarers should also include strategic competence (Canale, 1983), psycholinguistic competence (Hymes, 1972a) and pragmatic competence (Bachman and Palmer, 1996). Consequently, lack of communicative competence in English can present a great challenge for Chinese seafarers to be employed by foreign shipping companies since communicative competence of seafarers has a great safety implication in the maritime context.

### **3. Research Method**

In this study, a mixed methods approach was used to achieve the research objectives. Semi-structured interviews were conducted with twelve employers of Chinese seafarers. The interviewees included seven foreign shipowners and five Chinese crewing agents who assign Chinese seafarers to foreign ships. All the interview participants had carried out their businesses in the Chinese seafarer labour market for more than ten years. The interview questions covered five aspects: 1) the determining factors of hiring decisions of Chinese seafarers; 2) assessment requirements for English communicative competence; 3) employers' views on the current level of Chinese seafarers' communicative competence; 4) factors that can affect the communicative competence of Chinese seafarers; and 5) suggestions to improve seafarers' communicative competence. The interview questions are provided in Appendix 5.

An online questionnaire survey was developed to investigate how communicative competence may affect Chinese seafarers' competitiveness in the global maritime labour market. To recruit participants, advertisements were posted on the public areas of popular websites for Chinese seafarers. The advertisements were reposted every two months by



website administrators to collect sufficient responses. Since the questionnaire was developed in English while the actual data collection occurred in China where most people were not comfortable to read English, the questionnaire was translated into Chinese. Two bilingual researchers performed forward and backward translation to ensure equivalence. Confidentiality and anonymity were maintained throughout the data collection process. The questionnaire was made available online for an eight months period.

The questionnaire consists of four main parts: 1) the current level of Chinese seafarers' communicative competences; 2) the relationship between communicative competence of Chinese seafarers and their employability in the international maritime labour market; 3) Chinese seafarers' feedback on the maritime English education in China and barriers to effective communication; and 4) suggestions to improve Chinese seafarers' communicative competence. This paper reports and discusses the findings of the second part of the questionnaire. There are 17 questions related to the factors that may affect Chinese seafarers' employability in the global market. These questions are provided in Appendix 3.

For the interviews, the NVivo software was used for the data analysis. NVivo labelled the abovementioned five aspects of interview questions as nodes, i.e., determining factors, assessment requirements, current status, causes, and suggestions. NVivo allows multiple sources of information to be contained in a node as child nodes (Bhattacharya, 2014). For purely descriptive transcripts of interviews, a manual coding was made by tagging text with nodes in order to facilitate later retrieval (Bazeley and Jackson, 2013). After coding all information of the interviews, NVivo classified the interviewees into two groups for a comparison analysis, i.e., foreign shipowners and Chinese crewing agents. The functions of 'Query' and 'Explore' of NVivo were then applied to visualise the data analyses in the form of charts and project maps. For the quantitative data analysis, A Friedman Test was conducted to show ranks of factors in homogeneous subsets by using the IBM Statistical Package for the Social Sciences (SPSS) (Pallant, 2016). Homogeneous subsets were based on asymptotic significances and the significance level is .05.

#### **4. Data Analysis and Discussion**

This section will first analyse and discuss employers' views on factors affecting Chinese

seafarers' employability in the international maritime labour market. Second, it will analyse and discuss both employers and seafarers' views on the effect of communicative competence on Chinese seafarers' employability on foreign ships. The current level of Chinese seafarers' communication ability from employers' perspectives will then be examined and discussed.

#### **4.1 Factors influencing the employability of Chinese seafarers in the global maritime labour market**

Eight factors were mentioned by the employers interviewed, namely, technical competence (i.e. required certificate of competence), communicative competence in English, sea experience and past performance, adaptability to a multicultural and multilingual environment, motivation for seafaring career development, psychological competence (i.e., mental and emotional health), work attitude and self-discipline. The emphasis placed on these factors, however, differed between foreign shipowners and agents. In Fig. 1, for each factor, the higher level of consensus they reach, the closer the distribution of the symbols (i.e., square and diamond) is. A full agreement was reached on the importance of technical competence (Factor 1), work attitude (Factor 7) and English communicative competence (Factor 2) in their employability in the global maritime labour market. In addition, both foreign shipowners and Chinese crewing agents highlighted the importance of seafarers' adaptability to the multicultural and multilingual environment (Factor 4) and their motivation for career development (Factor 5). By contrast, shipowners valued psychological competence and self-discipline more than crewing agents did.

The differences can be explained by different priorities and concerns existing between shipowners and crewing agents. As one foreign shipowner explained, the priority of an agent is to earn commissions by recruiting seafarers who can be employed by foreign shipowners, whereas shipowners are more concerned about the safety of the ships and cargoes on board. Consequently, shipowners may consider seafarers' mental health more important than the agents do since unstable mental health of any seafarer could jeopardise the safety of ship operations.

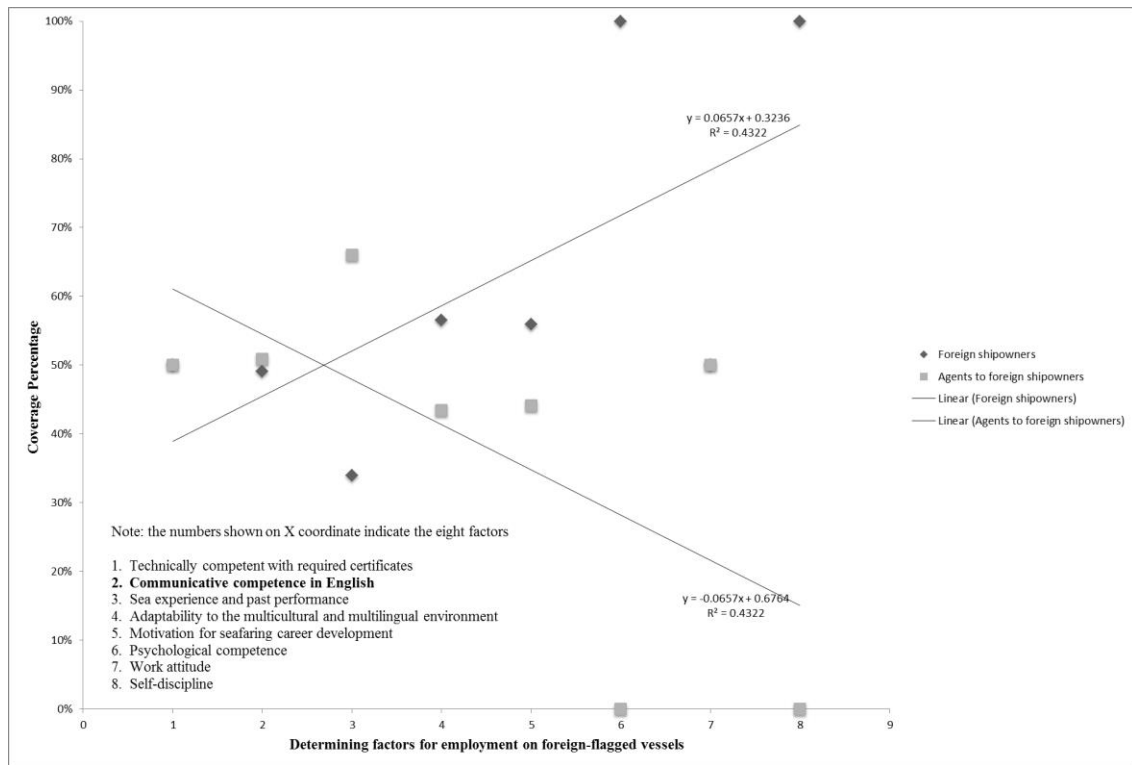


Figure 1: Comparisons of perspectives between shipowners and agents on factors determining the employability on foreign ships

Four out of the eight determining factors in this research: 1) competence in English, 2) work attitude, 3) technical skills and 4) adaptability to the multicultural and multilingual environment, are consistent with the finding of Wu et al. (2006) in a survey examining major factors that influence the employment of Chinese seafarers on foreign ships. Another four factors: 1) technical competence, 2) ability of communication in English, 3) psychological competence and 4) work attitude, coincide with the findings of Ding and Liang (2005) regarding factors influencing the recruitment of seafarers by shipping companies in Taiwan. The respondents of the survey conducted by Wu et al. (2006) were Chinese seafarers and those of the survey conducted by Ding and Liang (2005) were employers. Despite the disparities between these survey findings, the significance of three factors: 1) technical competence, 2) competence in English, and 3) work attitude, was agreed by both seafarers and employers.

It is not surprising that the importance of technical competence is prioritised by employers interviewed since technical know-how is fundamental to the safety of ship operations. Filipino maritime graduates find that English communication competency is a competitive advantage

in the beginning of their international seafaring careers (Orence and Laguador, 2013). In comparison, Chinese seafarers considered English communication as the greatest challenge when working on their first foreign ship according to the findings of this research. The importance of work attitudes is highlighted because they are the reflections of job satisfaction, motivation, cooperation, psychological wellbeing, and performance (Lyne, 1989). Seafarers' cooperation, psychological wellbeing and job performance can affect the safety of ship operations at sea (Håvold, 2007) since the seafaring profession is characterised by high pressure and stress, isolation and loneliness, harsh working condition and excessive work load (Rengamani and Murugan, 2012).

#### **4.2 The importance of communicative competence of Chinese seafarers in their overseas employability**

As for the determining factors of hiring decisions of Chinese seafarers, the levels of agreement made by employers varied on the eight influencing factors discussed in the previous section. In the percentage of agreement calculated by the node query in NVivo, the determining factors are presented in a descending order by weight (Fig. 2). The communicative competence of seafarers was a major factor, second only to the seafarers' technical competence. Over 80% of employers (n=12) interviewed agreed that English communicative competence was essential for Chinese seafarers to work on foreign vessels. As one shipowner in the container sector claimed, if seafarers cannot communicate in English with seafarers of other nationalities, they are just like deaf and dumb on board in spite of their level of technical competence. The remaining 16.7% employers (i.e., two crewing agents) did not place English communication as a top priority. One agent commented that 'English is a tool which is used to facilitate the work but not a determining factor'. Instead, the agent highlighted 'the ability of cooperating with others and adapting into the multicultural environment on board'. This comment, however, indirectly emphasises the significance of communicative competence since cooperation and adaption would not be possible without adequate communicative competence. In addition, these two agents were responsible for employing marine engineers and, for marine engineers, ship to ship and ship to shore communication is less demanding for the purpose of work on board, although the requirements for communicative competence of seafarers apply to all seafarers on board as specified in the Manila Amendment 2010 (Trenkner and Cole, 2010a).

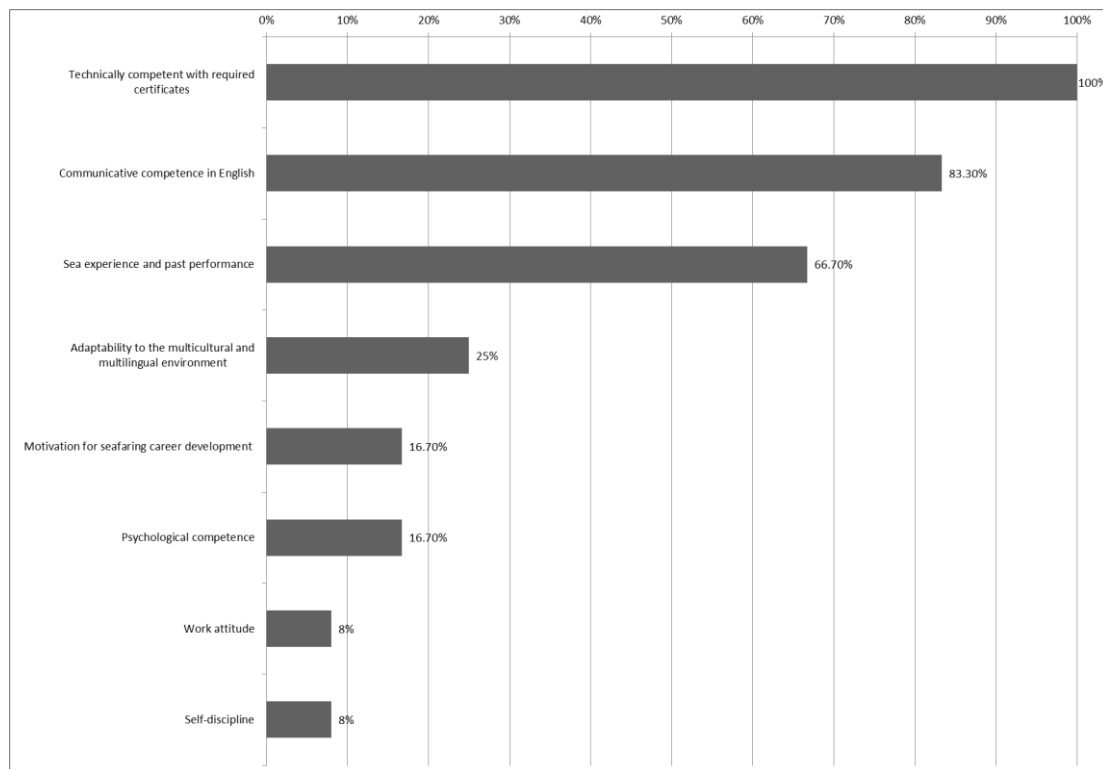


Figure 2: Agreement on the factors determining the employability of Chinese seafarers

For the questionnaire survey of seafarers, the Friedman Test was conducted to rank the importance of factors affecting Chinese seafarers' employability on foreign ships. The Friedman Test allows factors of homogenous significance to be grouped as subsets. Homogeneous subsets are based on asymptotic significances and the significance level is .05. It indicates that factors within each subset share no significant difference in mean values. For example, the first seven factors categorised into subset 1 share similar importance in the employability. The result shows that maritime listening and speaking abilities were ranked by seafarers as the top two most significant factors when working on foreign ships (Table 1). Seafarers highlighted the importance of personal relationship with shipmates (ranked third). In contrast, the employers interviewed did not mention interpersonal relationship. This can be explained by the fact that it is seafarers who actually work and live as a team on board and value interpersonal aspects more than others do. Since the space on board is so limited and there are limited social activities on board, it is very important for seafarers to maintain a healthy personal relationship with each other. Interpersonal communication is a major means of personal expression, sharing, learning and influence (Arnold and Boggs, 2015). Without communication, it is impossible for seafarers to build a sound personal relationship with their shipmates. The degree of effective communication can also affect other prominent factors,

i.e., teamwork and leadership. Crichton (2005) finds that communication is the most significant factor in enhancing teamwork. According to De Vries et al. (2010), communication ability is one of the essential ingredients of leadership, especially for charismatic and human-oriented leadership styles. As important interpersonal skills, communication, leadership and teamwork are highlighted in the Manila Amendments 2010 (Chauvin et al., 2013). Chinese seafarers and their employers in this study shared similar views in that communicative competence was essential for Chinese seafarers to work on foreign ships.

With the lowest rank, 'passing China College English Test (CET4)' was not considered important for the employers. As one crewing agent engaged in supplying Chinese seafarers to European shipowners explained, the English ability was evaluated by the face-to-face job interview rather than by the results of CET4. However, they sometimes referred to the results of CET4 to decide whether seafarers have a chance for the job interview. The validity of CET4 has often been questioned. For example, even without reading the source passages, students, at large, can choose the correct answers to the multiple choice questions in the reading comprehension part of CET4 (Liu, 2014). As such, passing CET4 cannot guarantee students' English competence.

**Table 1 Friedman Test of factors affecting Chinese seafarers' employability in the global labour market**

|                                      | Mean | Subset <sup>1</sup> |        |        |        |        |       |       |   |   |    |
|--------------------------------------|------|---------------------|--------|--------|--------|--------|-------|-------|---|---|----|
|                                      |      | 1                   | 2      | 3      | 4      | 5      | 6     | 7     | 8 | 9 | 10 |
| Maritime English listening ability   | 4.53 | 11.217              |        |        |        |        |       |       |   |   |    |
| Maritime English speaking ability    | 4.52 | 11.143              | 11.143 |        |        |        |       |       |   |   |    |
| Personal relationship with shipmates | 4.52 | 11.006              | 11.006 |        |        |        |       |       |   |   |    |
| Technical knowledge and skills       | 4.48 | 10.623              | 10.623 | 10.623 |        |        |       |       |   |   |    |
| Teamwork awareness                   | 4.46 | 10.594              | 10.594 | 10.594 | 10.594 |        |       |       |   |   |    |
| Daily English speaking ability       | 4.37 | 10.202              | 10.202 | 10.202 | 10.202 |        |       |       |   |   |    |
| Daily English listening ability      | 4.36 | 10.104              | 10.104 | 10.104 | 10.104 | 10.104 |       |       |   |   |    |
| Leadership                           | 4.34 |                     | 9.753  | 9.753  | 9.753  | 9.753  |       |       |   |   |    |
| Work commitment and dedication       | 4.31 |                     |        | 9.494  | 9.494  | 9.494  | 9.494 |       |   |   |    |
| Maritime English reading ability     | 4.27 |                     |        |        | 9.345  | 9.345  | 9.345 |       |   |   |    |
| communicative competence in English  | 4.17 |                     |        |        |        | 8.798  | 8.798 | 8.798 |   |   |    |

|   |      |        |        |        |        |        |        |       |       |                    |
|---|------|--------|--------|--------|--------|--------|--------|-------|-------|--------------------|
| Daily English reading ability             | 4.07 |        |        |        |        | 8.151  | 8.151  | 8.151 |       |                    |
| Maritime English writing ability          | 4.01 |        |        |        |        |        | 7.713  | 7.713 | 7.713 |                    |
| Intercultural competence                  | 3.88 |        |        |        |        |        |        | 6.938 | 6.938 |                    |
| Daily English writing ability             | 3.84 |        |        |        |        |        |        |       | 6.762 |                    |
| Loyalty to a shipping company             | 3.71 |        |        |        |        |        |        |       | 6.562 |                    |
| Passing China College English Test (CET4) | 3.19 |        |        |        |        |        |        |       | 4.596 |                    |
| Test Statistic                            |      | 12.824 | 14.646 | 11.323 | 12.087 | 10.581 | 10.629 | 5.421 | 5.983 | 8.695 <sup>2</sup> |
| Sig. (2-tailed test)                      |      | 0.046  | 0.023  | 0.045  | 0.034  | 0.032  | 0.014  | 0.066 | 0.05  | 0.043.             |
| Adjusted Sig. (2-tailed test)             |      | 0.108  | 0.055  | 0.123  | 0.092  | 0.104  | 0.058  | 0.323 | 0.253 | 0.136.             |

Homogeneous subsets are based on asymptotic significances. The significance level is .05.

1 Each cell shows the sample average rank except Mean and no significant difference of importance within each subset

2 Unable to compute because the subset contains only one sample

### 4.3 Assessment requirements for communicative competence of Chinese seafarers by their employers

Since communicative competence in English was shown to be one of the most significant factors when working on foreign ships, this section will explore the assessment requirements for seafarers' communicative competence. It was found in this study that Chinese seafarers' communicative competence was mainly assessed by employers during job interviews. In addition to interviews, some employers, mainly shipowners, also required online international maritime English tests, such as the Marlin English language test for seafarers. The test is a software assessment tool designed to assess both written and spoken English ability of seafarers of various ranks, positions and nationalities.

The English assessment requirements vary with seafarer ranks. Generally, seafarers at management level must be fluent in English communication and those at an operational level must have a sound command of English. English communication is not considered important for ratings at a support level. Oral communicative competence was much emphasised by employers. As one crewing agent engaged in training and supplying Chinese seafarers to European shipowners stated:

Mainly we evaluate their mastery of oral communication (listening and speaking) ability.

This is done during the job interview. Their professional knowledge can also be tested

orally in English... Both English proficiency and professional knowledge can be assessed during one interview.

Written competence was, however, increasingly highlighted, especially for senior officers. As one shipowner in the general cargo sector mentioned, a maritime writing test would be required for senior officers. When being asked what aspects are assessed during the recruitment interview, the employers mentioned the following seven aspects related to communicative competence, namely, practical English ability, English listening and speaking abilities, intercultural competence, English written ability, mental ability in communication, English reading ability, and strategic competence in communication.

The analysis shows that there were differences between shipowners and crewing agents as to their foci on these seven aspects. The weight (in terms of frequency of agreement) of each aspect of communicative competence shows that the shipowners placed more emphasis on intercultural competence, mental ability in communication and written ability in English than the agents did. The differences may again be due to their different interests and priorities between shipowners and agents. As one shipowner explained, unlike the Chinese crewing agents, he was concerned more about team performance on a ship rather than individual performance. Seafarers' intercultural and mental competences in English are important when working as a team in a multilingual and multicultural environment on board (Bocanegra-Valle, 2010). For example, seafarers can feel hurt in self-esteem when being criticised by the captain if they lack intercultural or psychological competence. The differences in interests and priorities between crewing agents and foreign shipowners can be illustrated by the complaint made by a shipowner that only 10% of candidates provided by Chinese crewing agents met his requirements due to their lack of communicative competence in English. Another shipowner claimed that the lack of writing ability was one of the barriers for Chinese seafarers to be promoted to a management level on board. Normally it is the shipping company for which a seafarer is serving that approves his or her promotion on board and the ship company places more importance on writing ability than the crewing agency does. Similar to the findings from the questionnaire survey of seafarers, employers reached a consensus that listening and speaking abilities were greatly emphasised during job interviews. The importance of listening and speaking abilities can be explained by the fact that verbal



communication is the most frequently performed exchange of information for seafarers (Trenkner and Cole, 2010a).

#### **4.4 Employers' views on communicative competence of Chinese seafarers**

When being asked about Chinese seafarers' communicative competence, 75% of the employers (n=12) interviewed stated that most Chinese seafarers are not competent in English communication. More than half of them believed that the past decade has generally witnessed a declining trend in Chinese seafarers' communicative competence. The reasons are multifaceted and will be discussed in Section 4.5. Chinese seafarers' lack of English communicative competence has been apparent and can be seen from different perspectives. One employer who was a harbour master in a foreign port commented from his own experience:

Being able to make themselves understood, and to understand instructions given to them is seen to be a problem. Chinese crew have difficulty understanding simple marine English instructions, such as, which side to make a lee, which side to rig the ladder and where to anchor. We are often frustrated at the apparent lack of understanding when communicating with Chinese deck officers. It can take many, many, many attempts to get a message across, even though English is supposed to be the language of the sea.

Due to a lack of listening ability, Chinese seafarers even struggle in understanding technical Maritime English. As such, it is not surprising that foreign employers found it difficult to recruit communicatively competent seafarers from China. The comment was echoed by another foreign employer:

Most Chinese seafarers are not competent in English communication and only around 10% of the applicants can meet the language requirement during job interviews... And there is very limited English communication at a rating level... It seems that the overall Chinese seafarers' communicative competence has been declining in recent years... It is really difficult to recruit seafarers in China.

While Chinese seafarers may easily pass maritime English tests for a certificate of competency, they may find it difficult to get a satisfactory score in the Marlin English tests. One foreign employer presented a Marlin English test record during the interview and stated,

In China, officers may speak some English, but ratings do not speak any English at all... Most candidates received a score of around 60 for the Marlin English tests... The

minimum requirement is from 75 to 80. It depends on different shipping activities.

The findings from the interviews also show that Chinese seafarers lacked adaptability when working on foreign ships due to insufficient intercultural competence as well as insufficient communication skills. As one shipowner in the liquefied natural gas (LNG) sector claimed:

Chinese seafarers are poor in the intercultural competence and need (to) improve their adaptability in the multicultural working environment... Great differences exist in values, manners, thinking logics and customs... For seafarers at management level, the requirement for adaptability is much higher in order to demonstrate their professional and management ability.

There were some relatively positive opinions from employers interviewed on Chinese seafarers' communicative competence. Generally, senior Chinese seafarers have no major communication problem on board. Another employer in the LNG sector commented that 'the majority of the senior personnel and officers are fair to good English speakers. At the rating level their ability to communicate in English is limited'. Another employer stated that Chinese seafarers find it difficult to get used to foreign accents and foreign cultures. While working on foreign ships may improve seafarers' communicative competence, the problem is that not every seafarer has the opportunity to work on foreign ships in the first place since they have to go through a very strict interview in which English communicative competence is an important part of the assessment.

The findings of the interviews in this study show that 66.7% of employers interviewed considered English communication deficiency as the main barrier for Chinese seafarers to be employed on foreign ships. Other barriers included the lack of multicultural knowledge, inadaptability in multicultural and multilingual working environment, Chinese crewing agents' control over the Chinese seafarer market, and lack of specialised knowledge and experience, such as on LNG vessels (Fig. 3). This finding is different from the claim by Wu et al. (2013) and Tang et al. (2016) that Chinese seafarers are not fully exposed to the international maritime labour market due to China's regulatory restrictions on the mobility of Chinese seafarers, which limit their chances of being employed by foreign companies.

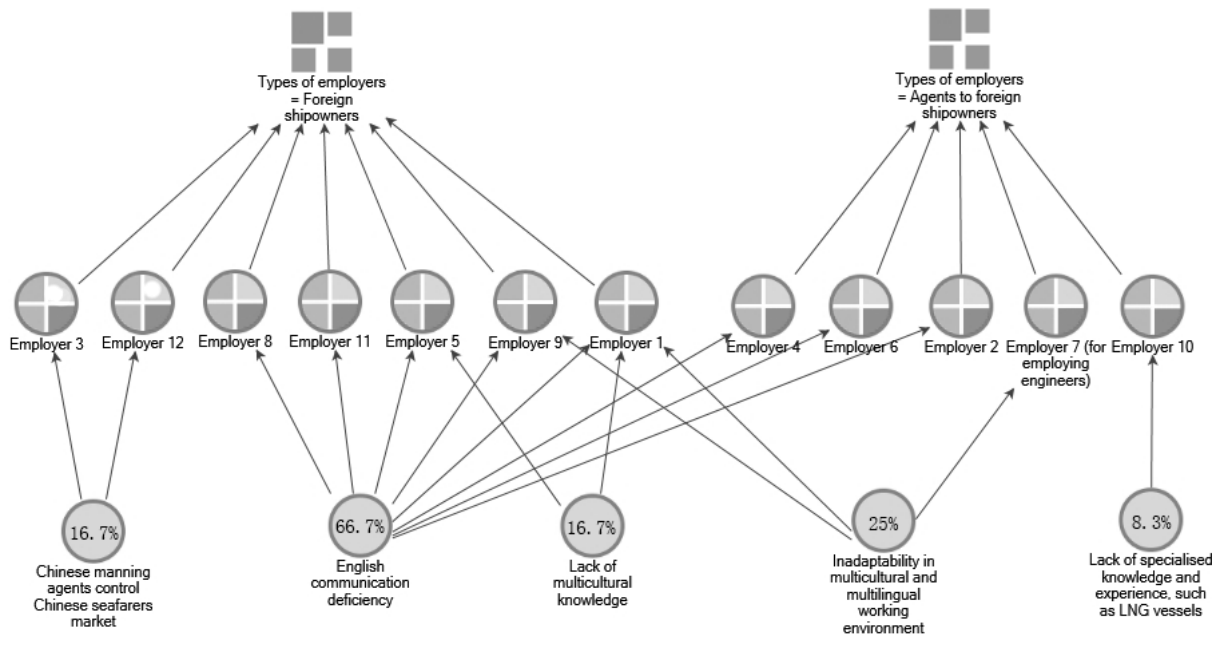


Figure 3: Main barriers for assigning Chinese seafarers to the international maritime labour market

#### 4.5 Causes of Chinese seafarers' insufficient communicative competence

The contributing factors of Chinese seafarers' insufficient communicative competence are multifaceted. The main reasons are a low level of English foundation of maritime students and an impractical maritime English education and training system.

With increased salaries on shore, the wage advantage at sea has been diminishing and young people are no longer keen to go to sea (Wu et al., 2013). In addition, the seafaring profession in China is less respected than jobs ashore (Qiang, 2014). More and more maritime graduates are sourced from remote areas where the level of English was generally much lower compared to that in coastal areas. The lower level of English education in these areas is associated with the less developed economies in these regions which limit their investment in English education, such as supply of quality English teachers and English learning facilities.

One crewing agent who is familiar with maritime English education in China claimed that maritime students lacked motivation in learning English. Brophy (2013) emphasises the central role of teachers in motivating students' learning in an established learning community. For example, maritime English teachers can enhance learners' motivation and understanding

through meaningful real-life communication topics that students are likely to encounter at work (Winbow, 2002). As for maritime English education and training in China, most employers interviewed in this study agreed that the most prominent issue was a shortage of quality maritime English teachers, which has limited maritime English education in various aspects such as developing teaching materials and methods. There are a very limited number of maritime English teachers in China who have both sufficient maritime knowledge and English teaching skills. Teachers who have English linguistics degrees are likely to lack professional maritime knowledge while master mariners may not have sufficient maritime English teaching skills. As for the maritime English assessments, they are dominated by multiple-choice questions that focus on testing learners' subject knowledge rather than English communication ability (Fan and Shi, 2012b). Maritime students in China, in most cases, tend to simply recite the answers to exam questions in order to obtain relevant certificates. Consequently, both teachers and students spend most time on the preparation for impractical maritime English exams (You, 2012a).

## **5. Conclusion and recommendation**

The communicative competence is one of the prerequisites for Chinese seafarers work in the international maritime labour market. The importance of communicative competence in English is reflected by many other factors, such as teamwork, leadership and interpersonal relationship. The lack of communicative competence has become one of the major barriers for Chinese seafarers to gain employment on foreign ships. The requirement for effective communication entails seafarers' intercultural, psycholinguistic, strategic, pragmatic competences as well as linguistic competence, which presents a great challenge to maritime English education in China. Consequently, foreign shipowners find it difficult to employ seafarers who have sound communication ability in China.

Both the seafarers and the employers in this study agreed that maritime English listening and speaking ability was one of the most important factors for Chinese seafarers to work on foreign ships. The findings from employers' views show that Chinese seafarers are poor in listening and speaking ability, especially in technical English. Chinese seafarers' insufficient communication ability in English also aggravates their inadaptability in multicultural and

multilingual working environment. Consequently, Chinese seafarers' insufficient English communicative competence becomes a great barrier for Chinese seafarers to be employed in the international maritime labour market.

Maritime English education and training needs a reform starting from designing and developing assessments that reflect the needs of the shipping industry since maritime English teaching and learning activities are greatly influenced by the assessments in China. Then, improving the quality of maritime English teachers must be highly prioritised in MET in China and they must be provided with sufficient professional training. To increase students' motivation in learning English, maritime English teachers must endeavour to design attractive maritime English teaching materials and seek an effective teaching mode in line with the practical needs of the shipping industry.

This paper has provided empirical evidence that communicative competence in English plays an essential role in Chinese seafarers' employability in the global maritime labour market. It is consistent with findings in the literature regarding the important role of communication ability in individuals' employability both in general and maritime settings. However, this article is limited by the small number of interviewees. The perspectives of these interviewees might not represent the whole group of interests.

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#### 4.4. Maritime English Education and Training in China

##### **What is wrong with Maritime English Education in China?**

**Abstract:** Many Chinese seafarers who passed the English exams required for a certificate of competency still experience difficulty communicating with foreign seafarers at sea. Literature indicates that the outcomes of maritime English education are not satisfactory. However, this claim has not been substantiated through empirical evidence. This paper aims to: 1) investigate the current level of Chinese maritime graduates' communicative competence; 2) identify aspects that affect their English communicative competence; and 3) provide suggestions to improve maritime English education in China. Both quantitative and qualitative methods were employed. The data collection tools included the questionnaire for Chinese seafarers and semi-structured interviews with maritime English teachers and Chinese seafarers. The findings show that English communicative incompetence of Chinese seafarers was attributable to the maritime English examinations system, teaching materials, teaching methods and teachers and students themselves. Recommendations were made to improve maritime students' communicative competence.

**Keywords:** communicative competence; effective communication; maritime English teachers; Chinese seafarers; maritime education and training.

## 1. Introduction

Communication barriers at sea have become an increasing concern in the shipping industry due to the fact that many maritime incidents are related to communication failures. Communication failure is responsible for 24% of maritime accidents (Ziarati, 2006). Effective communication has gained increasing significance in ensuring safe, secure and clean shipping. This significance has been reflected in the Manila Amendments 2010 which requires effective oral communication among seafarers in every shipping company as a compulsory requirement in order to address the increased frequency of communication-related maritime accidents worldwide (IMO, 2011).

The increased communication requirement brings great pressure to maritime English education in China where English is taught and learned as a foreign language. The English deficiency of Chinese seafarers is regarded as one of the main barriers for them to work on foreign ships (Dirgayasa, 2014, Zhang et al., 2008b). Currently, over 90% of Chinese seafarers are working on Chinese vessels (Lee et al., 2014). The employment pressure in the domestic maritime labour market (Zhang, 2015) makes it imperative to assign more Chinese seafarers to foreign ships. In order to compete in the international maritime labour market, Chinese seafarers must meet the industry requirement for English communication in the international maritime labour market.

In China, all maritime students must pass the maritime English examination for the Certificate of Competency required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 78/95/2010). Meanwhile, Chinese students also need to pass general English tests as part of the requirements for their academic degree or diploma. Theoretically, Chinese seafarers would be considered as competent in English communication if they pass the required English tests. However, literature indicates that the outcomes of maritime English education are not satisfactory (Fan et al., 2015c) as

they cannot meet the industry requirement for English communication in the international maritime labour market.

There is limited empirical research conducted on the maritime English education and training in China. This paper will first examine the outcomes of maritime English education and training (MEET) by investigating the current level of Chinese maritime graduates' communicative competence. It will then identify the educational aspects that affect their English communicative competence before providing suggestions to improve maritime English education in China.

## **2. A review of causes of Chinese seafarers' English communication deficiency**

In this section, the review of causes will be summarised as the following aspects: linguistic competence, cultural competence, work environment on board, interpersonal relationships, power relations, psychological factors and maritime English education.

While some scholars claim that Chinese seafarers' English language proficiency has been improved through a consecutive quality control system and advanced facilities in Maritime English education and training (MEET) in China (Sakhuja, 2011, Tang et al., 2016), many Chinese seafarers still find it difficult to communicate in English with others, such as port state control officers and pilots (Huang, 2004, Kang et al., 2013). A survey of 28 Japanese Vessel Traffic Services (VTS) officers conducted by Uchida and Takagi (2012) shows that among 19 nationalities of seafarers, the English spoken by Chinese seafarers was one of the three most difficult ones to understand due to their heavy accents and poor vocabulary. Similarly, Russian seafarers agreed that it was difficult to understand the English spoken by Chinese seafarers at sea (Loginovsky, 2002).

Due to different linguistic and cultural backgrounds of English users, English as a lingua franca used at sea exhibits significant variations influenced by various mother tongues and different levels of English proficiency, thus making the communication among them extremely challenging (Uchida and Takagi, 2012). The world merchant fleet is manned with seafarers from various nations and the majority of merchant vessels are manned with multinational

and multilingual crews (Susetyo, 2010).

In China, there are 56 ethnic groups with diverse cultures (Deng and Bai, 2014) which may affect English communication in the same way as the dominant Han Chinese culture would. Chinese seafarers receive different levels of maritime English education in different maritime education and training institutes across the nation. As such, the diversities of Chinese seafarers in terms of cultures and English proficiency may impair the effective communication onboard. With a fast wage increase for shore workers, seafaring is no longer attractive to young people, especially those from coastal areas where the income level is relatively higher compared to inland areas. With an increasing number of maritime students are sourced from some ethnic groups in the central and western parts of China, Chinese seafarers must have both Chinese and foreign cultural awareness. Nearly three quarters of seafarers working on multicultural vessels agreed that cultural differences among crew have an impact on the level of communication onboard (Ziarati et al., 2011). More than 30% of seafarers believed that cultural barriers frequently affect effective communication onboard (Wang and Gu, 2005). Cultural barriers have become one of the main obstacles in maritime communication that can lead to misunderstanding, communication failures, distrust and even conflicts. In China, cultural awareness training has been neglected in maritime education and training (Wang and Gu, 2005).

Besides demonstrated English and cultural knowledge, the effectiveness of communication can be influenced by other factors, such as the environment, the attributes of interlocutors and the relationships among interlocutors (DeThorne et al., 2014). Seafarers are exposed to great risks and stresses attributable to their high-pressure work involved and a harsh work environment onboard, which would impair the effective communication at sea. The hierarchical organisation onboard can also be a barrier to upward communication (Fan et al., 2016, Acejo, 2012). The highly hierarchical nature of Chinese societies (Kwek and Lee, 2015) could to some extent affect the effective communication for Chinese seafarers. For example, some seafarers might be reluctant to report a minor malfunction to the captain due to power relations.

Psychosocial stresses caused by isolation, loneliness and fatigue are common for seafarers (Jensen et al., 2009). Communication effectiveness plays a dominant role in dealing with psychosocial stress encountered in a multicultural environment (Poyrazli et al., 2002). As a social interaction, communication can also alleviate one's loneliness and isolation (Chen and Schulz, 2016). In return, the sense of loneliness and isolation among seafarers can be aggravated without social interaction onboard (Zhang, 2016). The aggravated psychosocial stress because of isolation, loneliness and fatigue can interfere with one's thinking and speaking.

Wang and Gu (2005) find that maritime communication in English can be affected by psychological factors and maritime students must be trained to be open-minded and confident in using English. From psycholinguistic perspectives, some Chinese students, as foreign language learners, are shy and reluctant to speak English or ask questions since they are afraid of losing face (He, 1996, Tong et al., 2011). The sensitivity to one's face is influenced by the Chinese value and culture under a highly hierarchical and collectivistic structure (Kwek and Lee, 2015). In practice, You (2012a) finds that there are limited interactions in English between maritime English teachers and students as well as among students themselves even though they are encouraged to do so. Without sufficient practice of English in their daily life, some Chinese maritime students are known as 'dumb English' learners (You, 2012a).

The English communication ability of Chinese seafarers is greatly affected by the MEET system in China. For both maritime English teachers and students, passing the exams has been the top priority in maritime English teaching and learning (You, 2012a). The exam-oriented MEET which neglects a practical use of English cannot effectively improve Chinese maritime students' English communicative ability (Li and Pyne, 2013, Zhang et al., 2008b). Instead of testing English communication ability, maritime English examination questions normally focus on testing maritime subject knowledge in English (Zhang et al., 2008b). There are limited open-ended questions in the maritime English examination since students are only expected to complete multiple-choice questions in exams. However, multiple-choice questions may be suitable for testing English grammar but not appropriate for communicative tests which focus on the 'use' rather than the 'usage' of a language (Coombe et al., 2012).

Similarly, the contents of maritime English textbooks are subject-knowledge-based and exam-oriented (Xie and Ruan, 2007). Maritime English teachers tend to spend significant amount of time explaining, in Chinese, the maritime knowledge in textbooks, leaving little time for language practice activities. Even though maritime English teachers try to carry out language practice activities, only a few students passively respond to the teachers' initiatives of interactive activities and students prefer to ask questions in Chinese from teachers after class rather than in class (You, 2012a). The limited interactions can also be attributable to large-size classes (Blatchford et al., 2011, Harfitt, 2013). It is common for maritime English teachers to face over 50 maritime students in one classroom in China. As such, interactions in English among maritime English teachers and students in class are greatly limited.

### **3. Research Method**

In order to provide empirical evidence on maritime English education in China in terms of the outcomes of maritime English education, the factors contributing to the outcomes and the suggestions to improve the outcomes, a mixed-methods approach including both quantitative and qualitative methods was applied to this research. The research instruments included an online questionnaire survey and a mix of semi-structured face-to-face and telephone interviews. A comparison of viewpoints between maritime English teachers and seafarers was made to identify similarities and differences between the two groups. A total of 235 Chinese seafarers participated in the questionnaire survey, and 25 maritime English teachers and 12 Chinese seafarers participated in the interviews. Confidentiality and anonymity were maintained throughout the data collection process.

A recruitment advertisement for the online questionnaire survey was posted on the public areas of some major websites targeting Chinese seafarer and regularly reposted to gather sufficient data. The questionnaire was made available online for around 8 months. The 25 teachers were selected from the total 50 registered maritime higher education and training institutes in China. The 50 institutes were first categorised in terms of educational levels and geographic locations. The interview arrangements were then made with the assistance of administration people randomly selected from institutes in each category. The 12 Chinese

seafarers were selected from the 18 questionnaire respondents who volunteered to participate in the interviews.

The questionnaire consists of four main parts: 1) the current English communicative competence of Chinese seafarers; 2) the degree of importance of Chinese seafarers' English communicative competence in their employment in the international maritime labour market; 3) Chinese seafarers' feedback on MEET in China and the barriers to effective communication; and 4) the recommendations for improving Chinese seafarers' English communicative competence.

This paper reports and discusses the findings of the third and fourth parts of the questionnaire. There are 12 statements related to feedback on MEET, 8 statements regarding the barriers to effective communication and 5 statements concerning suggestions to improve MEET from Chinese seafarers' perspectives. These questions used a 5-Point Likert Scale anchored from 1 (strongly disagree) to 5 (strongly agree) which has been proved to be an acceptable and efficient statistical measurement (Paige et al., 2016). With the numerical answers on the Likert Scale, mean calculation was conducted to assess the degree of significance of each statement using the IBM Statistical Package for the Social Sciences (SPSS).

Qualitative data collected from the interviews were analysed using the software NVivo. Maritime English teachers were categorised and coded according to the different levels of education of students instructed, years of teaching experience, professional backgrounds and types of maritime English delivered. The categorising of maritime English teachers presents a general structure of maritime English teachers in China. Since there is no systematic research on the outcomes of maritime English education from maritime English teachers in China, the views from maritime English teachers in different categories were compared and analysed regarding the current level of the English communicative competence of Chinese maritime graduates.

## **4. Data Analysis and Discussion**

### **4.1 Demographic information about participants**



The majority of the maritime English teachers in the interviews had taught maritime English for 1-5 years or 6-10 years, accounting for 32% (n=25) and 36% (n=25) respectively. Most of them had English linguistic or seafaring background, representing 48% (n=25) and 36% (n=25) respectively. Some maritime English teachers had other professional backgrounds, such as Maritime Logistics, Vehicle Operation Engineering and Ship Building Engineering. There was one maritime English teacher who had both seafaring and English linguistic background. The distribution of each category of maritime English teachers is shown in Table 1. The questionnaire respondents had a wide range of ages and educational qualifications. Most of them held an Advanced Diploma (58.03%, n=235) or Bachelor's degree (18.47%, n=235) and around 90% (n=235) of them aged from 18 to 40 years old (see Table 2).

**Table 1. General information of participants in the interviews**

| Attributes                                  | Sub-attributes                    | Percentage (n=25) |
|---|-----------------------------------|-------------------|
| Level of education of students being taught | Advanced Diploma                  | 52%               |
|   | Bachelor                          | 48%               |
| Years of teaching maritime English          | 1-5                               | 32%               |
|   | 6-10                              | 36%               |
|   | 11-15                             | 20%               |
|   | 16 and above                      | 12%               |
| Professional backgrounds                    | English Linguistics               | 48%               |
|   | Seafaring                         | 36%               |
|   | Seafaring and English Linguistics | 4%                |
|   | Maritime Logistics                | 4%                |
|   | Vehicle Operation Engineering     | 4%                |
|   | Ship Building Engineering         | 4%                |
| Types of maritime English delivered         | English for Navigation            | 72%               |
|   | English for Marine engineering    | 28%               |

Source: Authors

**Table 2. General information of respondents of the questionnaire survey**

| Attributes                | Sub-attributes   | Percentage (n=235) |
|---------------------------|------------------|--------------------|
| Educational qualification | High school      | 16.47%             |
|                           | Advanced Diploma | 58.03%             |
|                           | Bachelor         | 18.47%             |
|                           | Master Degree    | 7.03%              |
| Age (years old)           | 18-25            | 42.11%             |
|                           | 26-40            | 51.42%             |
|                           | 41-55            | 6.28%              |
|                           | 56 and above     | 0.20%              |

Source: Authors

#### **4.2 Maritime English teachers' views on the communicative competence of maritime graduates**

Nearly 90% (n=25) of maritime English teachers interviewed showed great dissatisfactions with the English communicative competence of their maritime graduates. Specifically, most of them believed that their maritime graduates were poor (44%, n=25) or very poor (44%, n=25) in their English communicative competence. Maritime English teachers with seafaring background and those teaching English for marine engineering students showed greater dissatisfaction with their graduates' English communication ability (Figure 1).

Since most maritime English teachers of seafaring background are competent in teaching technical knowledge but lack English teaching knowledge and skills (Ding, 2015), it is more challenging for them to improve their students' English communication ability compared to maritime English teachers with English linguistics backgrounds. As such, compared to English teachers, most maritime English teachers of seafaring background tend to show more dissatisfaction with their students' English communication.

All maritime English teachers interviewed who had taught marine engineering students were not satisfied with their students' English performance. Maritime English for marine engineers is undervalued at many maritime education and training institutes (Trenkner and Cole, 2010c). It is not given the same attention as maritime English for deck officers who are responsible for external communication on the bridge. Some marine engineering teachers believe that marine Engineering students must concentrate on their technical subjects rather than

maritime English (Zhang, 2013). Consequently, marine engineering students would have little motivation to improve their English communication.

In China, normally, maritime English is not treated equally as technical subjects. For example, the qualification requirement for a maritime English teacher is lower than that for a technical subject teacher. On the one hand, most teachers of seafaring background are not willing to bother to learn extra English teaching knowledge to teach maritime English; on the other hand, most English teachers are not willing to spend time in learning maritime knowledge to teach maritime English. Consequently, it is difficult to find sufficient quality maritime English teachers from the domestic labour market in China. Consequently, the qualification requirement for a maritime English teacher is lowered. Instead, a new English linguistic graduate or a new maritime graduate without much sea experience may be employed as a maritime English teacher.

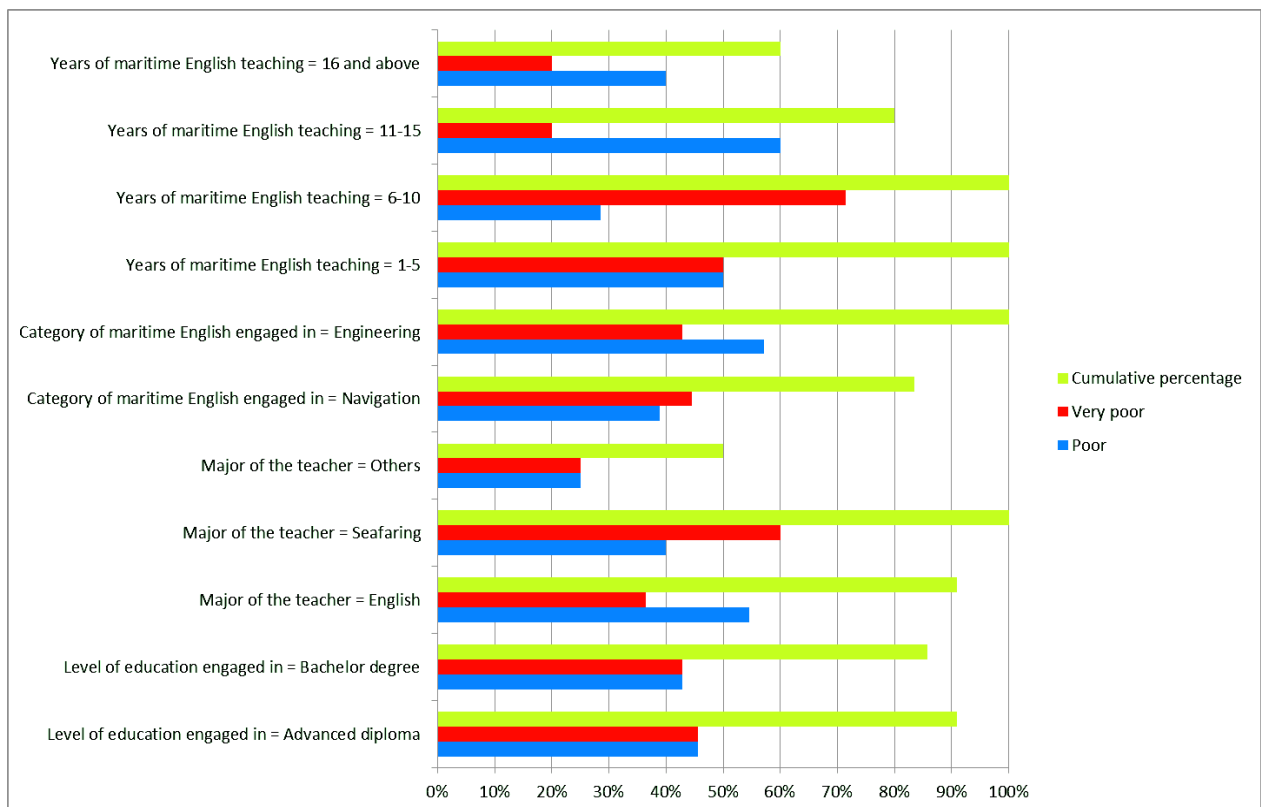


Figure 1. Maritime English teachers' perceptions of their students' English communicative competence

#### 4.3 The feedback on maritime English education in China

In view of the communicative incompetence of maritime graduates, this section will present and discuss the causes of it from the perspectives of both maritime English teachers and Chinese seafarers.

#### **4.3.1 Maritime English teachers' views**

Around 90% of maritime English teachers (n=25) interviewed in this research agreed that in recent years the English communicative competence of maritime students had been gradually worsening. An increasing number of maritime students are recruited from central, western and other remote areas of China where students generally receive a relatively low level of English education. This is mainly due to the unattractiveness of a seafaring career for young people in the coastal areas. Furthermore, due to the effect of over-30-year one-child policy, the total number of high school graduates participating in entrance examinations for tertiary education has dropped from 10,610,000 in 2008 to 9,400,000 in 2016 despite an 18% increase in the enrolment rate during the same period (Askci, 2016). The decreased number of high school graduates indicates a fierce competition between tertiary education institutions for talented high school students due to a significant increase in the number of universities in recent years. This student recruitment competition presents great pressure on China tertiary education institutes including maritime education and training institutes. In order to survive, many maritime education and training institutes continue to lower their enrolment requirements to the limits. The lowered enrolment requirements have provided education opportunities for students from central, western and other remote areas of China partly due to their relatively low levels of education.

Besides the low English levels of new maritime students, the national maritime English examination system was under frequent criticism. As a maritime English teacher interviewed in this research stated, maritime English examination questions tended to focus on tricky subject knowledge that was impractical in real communication. Focusing on improving students' communication ability would most likely lead to students failing these tricky exams. Around 60% maritime English teachers (n=25) interviewed in this research spent half of their class time teaching textbooks and the other half teaching exam questions. Two of them spent 75% of their class time helping students address exam questions. Maritime English teachers

spent much time helping students deal with exam questions since the exam pass rate is treated by many maritime education and training institutes as a main measurement of teaching achievements (Shen and Wang, 2011). The pass rate of maritime English exams is always the lowest in all the exams for the certificate of competency issued by China Maritime Safety Administration (CMSA) (Wu and Cai, 2016). The low pass rate of maritime English exams has become a bottleneck for maritime students to get a certificate of competency. As another maritime English teacher interviewed in this research stated, it was important for the senior management of a college to have as many certified students as possible, so the pass rate of maritime English examinations was greatly emphasised in China. As such, it is quantity over quality regarding maritime English education in China.

It is difficult for maritime students to cope with the exam questions and some of the questions are even challenging to maritime English teachers. As stated by a maritime English teacher with seafaring background, some questions were so tricky that even a captain could not provide correct answers to them even if they were translated into Chinese. The exam questions are randomly selected by computer from a maritime English test question bank which is developed and maintained by CMSA. The exam questions focused on testing technical knowledge in a multiple choice format. There was a great lack of interactive questions for encouraging students to develop capability in conveying ideas and thoughts, and constructing arguments in English, thus improving their ability in using English in the maritime context.

Over 80% of the 25 maritime English teachers used the maritime English textbooks prescribed by CMSA. Most of them found the textbooks were neither helpful for students to pass the exams nor useful for improving their communicative competence. On the one hand, the content of maritime English exam involves various aspects of maritime knowledge that could be hardly covered in one maritime English textbook. On the other hand, similar to the exam content, the content of maritime English textbooks focused on technical knowledge and was not authentic for the purpose of real-life communication. Maritime English belongs to English for specific purposes (ESP) (Cole et al., 2007) and the use of authentic content materials is one of the features of an ESP course (Gatehouse, 2001, Carver, 1983). Consequently, the content of maritime English textbooks should have taken into account the practical communication

needs of seafarers at sea, for example, based on the Standard Marine Communication Phrases (SMCP).

Furthermore, both degree and non-degree students used the same textbooks and there was a lack of user needs analysis for the textbooks. A lack of needs analysis for ESP textbooks can result in unsuitability for users (Baleghizadeh and Rahimi, 2011). The textbooks prescribed by CMSA were not used to full capacity by maritime English teachers partly due to a lack of user needs analysis. The user needs analysis involves investigating the factors that can affect the way of learning, such as learners' demands, learning environment, learners' current English level, previous learning experience, reasons for attending the course and expectation (Otilia, 2015). As such, using the same maritime English textbooks in most maritime education and training institutes in China indicates that these factors of users were hardly investigated.

Two of maritime English teachers interviewed in this research claimed that their maritime graduates were good in English communication. Further conversation during the interview revealed that maritime students' English communication ability was greatly emphasised by the senior management of their college. As one of the maritime English teachers stated, the first-year maritime students in her college were managed by the English department of their colleges in order to improve their English communication ability together with English-major students. The listening and speaking abilities were highlighted and practiced in their learning. Meanwhile, the quality of maritime English teachers was guaranteed by various measures initiated by the college with the motto of 'the good quality of teachers can result in the good quality of students'. Almost all maritime English teachers received overseas training experience or onboard maritime English teaching and training experience. Furthermore, maritime teachers were frequently invited to provide maritime knowledge training for maritime English teachers who had no seafaring background. These two maritime English teachers also developed their own maritime English materials focusing on English communication activities. These measures aim to improve the communication ability of maritime students rather than simply help them pass the exams.

Since it is difficult to recruit qualified maritime English teachers from the domestic labour

market, the qualification for a maritime English teacher needs to be upgraded. One maritime English teacher interviewed highlighted that it was of a great challenge for maritime English teachers to dedicate to teaching both language and technical knowledge at the same time. When being asked what the biggest challenge for maritime English teaching was, three maritime English teachers admitted that they greatly lacked maritime knowledge. As one maritime English teacher claimed, maritime English teachers needed to receive professional trainings for maritime English language teaching. When most maritime English teachers without sea experience expressed their eagerness to receive training on board vessels for a few trips, Rao (2012) expressed his concerns over the high training fees and certificates requirements for onboard training. Consequently, there needs to be a long-term training scheme for maritime English teachers in China in terms of financial support, training resources and communication channels.

#### **4.3.2 Chinese seafarers' views**

Limited research has investigated Chinese seafarers' views on the effectiveness of MEET in China. To fill this gap, Table 3 presents the feedback from Chinese seafarers on the MEET in China. Generally, the MEET was not considered to be sufficient or appropriate. Most respondents were particularly dissatisfied with the teaching methods (66.18%, n=235) and the examination system (60.70%, n=235). This finding corroborated the views of maritime English teachers interviewed on the examinations system. It also indicates that the current exam-oriented and translation teaching methods (Fu, 2010, Shen and Wang, 2011) could not meet the demands of maritime English learners. The most prominent issue was insufficient intercultural training despite the fact that intercultural competence is greatly highlighted in the literature as an important factor of communicative competence for seafarers (Wang and Gu, 2005). Other concerns included insufficient strategic communication skills (67.47%) and insufficient knowledge of psychological variables that facilitate effective communication at sea (62.26%). Psychological variables include the knowledge of coping with social hierarchy stress, interpersonal relationships and positive politeness strategies that help achieve communication goals (Krauss and Fussell, 1996).

Maritime English teaching and learning currently focus on improving maritime students'

linguistic competence. However, it is surprising to find that most respondents could not agree that they had received sufficient linguistic knowledge, especially in the writing and speaking aspects (Rank 6 and 7). Less than half of the questionnaire respondents were satisfied with the trainings on writing and speaking provided by their maritime education and training institutes, accounting for 34.98% (n=235) and 40.19% (n=235) respectively. This can be explained by the fact that most maritime English teachers interviewed in this research spent most of their class time on the technical knowledge-centred textbooks and exams questions, leaving little time in teaching communication skills. Besides, less than half of the questionnaire respondents believed that maritime English teachers and maritime English textbooks contributed to their learning, representing 44.82% and 48.51% respectively. This finding is consistent with maritime English teachers' views on the quality of teachers and maritime textbooks.

Table 3. Chinese seafarers' feedback on maritime English education that could contribute to English communicative competence

|  | Mean | Degree of Agreement (n=235)<br>(1=Strongly disagree, 5=Strongly agree) |        |        |        |       | Rank |
|--|------|--|--------|--------|--------|-------|------|
|  |      | 1  | 2      | 3      | 4      | 5     |      |
| I received sufficient intercultural training at my maritime institution                      | 2.78 | 12.14%   | 27.18% | 34.95% | 21.84% | 3.88% | 1    |
| I liked the teaching methods of maritime English   | 2.92 | 11.76%   | 25.49% | 28.92% | 26.96% | 6.86% | 2    |
| I gained sufficient strategic communication skills at my maritime institution                | 2.92 | 10.68%   | 24.76% | 32.04% | 26.70% | 5.83% | 3    |
| Maritime English exams were good measurements of my maritime English ability                 | 2.95 | 14.93%   | 21.89% | 23.88% | 31.84% | 7.46% | 4    |
| I obtained sufficient psychological knowledge in learning English at my maritime institution | 2.96 | 12.25%   | 23.04% | 26.96% | 32.35% | 5.39% | 5    |
| I received sufficient English writing training at my maritime institution                    | 2.99 | 11.82%   | 19.70% | 33.50% | 28.08% | 6.90% | 6    |
| I received sufficient English speaking training at my maritime institution                   | 3.08 | 8.33%  | 23.04% | 28.43% | 32.35% | 7.84% | 7    |
| I obtained sufficient linguistic knowledge at my maritime institution                        | 3.12 | 6.31%  | 23.79% | 27.67% | 35.92% | 6.31% | 8    |
| I received sufficient English listening training at my maritime institution                  | 3.13 | 6.31%  | 23.30% | 30.10% | 31.55% | 8.74% | 9    |



|   |      |       |        |        |        |       |    |
|---|------|-------|--------|--------|--------|-------|----|
| I received sufficient English reading training at my maritime institution | 3.22 | 6.83% | 17.56% | 30.73% | 36.10% | 8.78% | 10 |
| Maritime English teachers were helpful for improving my maritime English  | 3.26 | 3.94% | 19.21% | 32.02% | 36.45% | 8.37% | 11 |
| Maritime English textbooks were useful in improving my English ability    | 3.29 | 6.44% | 14.85% | 30.20% | 40.59% | 7.92% | 12 |

#### 4.4 Communication difficulties at sea

Given the negative views from both groups on the maritime English education, communication difficulties would likely occur at sea. To investigate the possible communication difficulties Chinese seafarers may have, the Section 3 of the questionnaire asked 'To what extent do you agree with the following statements regarding barriers to effective communication at sea'. The results in Table 4 show that nearly 90% of the questionnaire respondents agreed or strongly agreed that 'poor vocabulary' contributed to their communication difficulties at sea (Mean=4.16). This is also agreed by one seafarers interviewed in this research who stated that he could hardly join a conversation with a Romanian chief engineer who talked about the breeds of dogs due to a lack of relevant vocabulary. Another seafarer in the interview mentioned that he could not understand various English slangs used by foreign seafarers. Lourdunathan and Menon (2017) claim that students find it difficult to play an effective role in group discussions without necessary vocabulary. Although sufficient vocabulary or language proficiency can make communication clarification easier, communication strategies can to some extent compensate the effect of a limited range of vocabulary or limited language proficiency (Lourdunathan and Menon, 2017). However, as mentioned in Section 4.3, Chinese seafarers did not receive sufficient communication strategies at maritime education institutes.

As a natural part of spoken language, accents are identified as a barrier to effective communication even when the parties involved are speaking the same language (Wagner et al., 2015). As such, accents have become a barrier to effective communication among seafarers at sea since they are sourced from different parts of the world and have totally distinguished accents. Around three quarters of the questionnaire respondents in this

research agreed or strongly agreed that 'difficulty in understanding foreign accents' was one of the barriers to effective communication. It indicates that the multilingual working environment at sea presents a great challenge to Chinese seafarers who were not familiar with foreign accents. As one third officer interviewed in this research stated, it was difficult to understand foreign seafarers due to their heavy accents, especially the Pilipino and Indian seafarers. Foreign seafarers also complained about his heavy accent, the third officer continued, even though he believed he spoke English in a correct and clear manner.

Japanese VTS officers find it difficult to understand Americans and the British seafarers due to their fast-paced speech (Uchida and Takagi, 2012). Similar to Japanese VTS officers, most Chinese seafarers (73.27%, n=235) agreed or strongly agreed that some foreign seafarers spoke English too fast to understand and regarded the 'fast speech rate' as a contributing factor to communication difficulties. As a captain interviewee stated, some foreign seafarers spoke English very fast in different accents and they used various abbreviations that were difficult to understand. However, both 'accents' and the 'fast speech rate' of others can hardly be expected to change to meet Chinese seafarers' demand. It is not 'accents' or 'fast speech rate' that are the barriers to effective communication. Instead, it is the lack of English fluency and learning experience of Chinese seafarers that cause the difficulties. However, as a communication strategy, Chinese seafarers may ask foreign seafarers to speak slowly for a better understanding.

Around 70% of the questionnaire respondents considered the incorrect use of grammar and poor pronunciation as contributing factors to communication difficulties. This finding indicates that the effort of maritime English teachers on improving students' grammar, pronunciation as well as vocabulary knowledge was not paid off as expected. However, a third officer interviewed in this research expressed his view that the grammar does not matter much during communication onboard and understanding each other is key. One probable reason is that the English knowledge maritime students learned at colleges are not authentic. As one seafarer claimed, many technical English words learned from the textbooks and multiple-choice exam questions could hardly be used in real-life communications. Another reason is that it presents a great challenge for a non-native English-speaker teacher, especially

those maritime English teachers without professional linguistic background, to teach totally different pronunciation knowledge. In terms of vocabulary, sentence structure, pronunciation and voice tone, pitch and intonation, the vast linguistic distance between Chinese language and Teutonic English presents a great challenge to English teaching and learning in China (Schriever, 2008). Furthermore, most Chinese maritime students got used to multiple-choice questions and could not properly express themselves in English. One second officer interviewed in this research quipped that he would have passed the first job interview if the interviewer had asked him to do the multiple-choice questions instead of asking him to answer open questions. It indicates the maritime English teaching and learning in China is somewhat misleading.

It was agreed by most questionnaire respondents that the other two contributing factors to communication difficulties were the ‘harsh working environment’ (55.45%, n=235) and ‘feeling shy to speak English’ (53.18%, n=235). This result was not unexpected. Effective communication was affected by the external physical environment at sea as well as by the internal psychological stress induced by English communication. Maritime English education and training was carried out in an ideal environment, normally in a regular classroom with little external interference, but the real working environment is totally different from the classroom. Students can familiarise themselves with the real-life working environment by using simulation communication scenarios and using bridge simulators resources. ‘Shyness’ was found in this research to be one of the barriers to effective communication for Chinese seafarers. This is consistent with the finding that Chinese students are shy and reluctant to speak English (He, 1996, Tong et al., 2011). It can be seen that Chinese maritime students are no exception. However, the effects of ‘working environment’ and ‘feeling shy to speak English’ were not considered as strong as that of a lack of English language proficiency.

**Table 4.** Communication difficulties at sea for Chinese seafarers

|   | Mean | Degree of Agreement (n=235)<br>(1=Strongly disagree, 5=Strongly agree) |       |        |        |        | Rank |
|---|------|--|-------|--------|--------|--------|------|
|   |      | 1  | 2     | 3      | 4      | 5      |      |
| Poor vocabulary myself                      | 4.16 | 0.49%  | 0.98% | 10.29% | 58.33% | 29.90% | 1    |
| Difficulty in understanding foreign accents | 3.91 | 0.00%  | 5.00% | 20.50% | 53.50% | 21.00% | 2    |

|   |      |       |        |        |        |        |   |
|---|------|-------|--------|--------|--------|--------|---|
| Foreign seafarers speak too fast        | 3.80 | 0.50% | 7.43%  | 18.81% | 57.92% | 15.35% | 3 |
| Poor grammar myself                     | 3.78 | 2.45% | 5.88%  | 20.10% | 54.41% | 17.16% | 4 |
| Poor pronunciation myself               | 3.76 | 1.96% | 6.86%  | 22.55% | 50.00% | 18.63% | 5 |
| Incorrectly use of grammar by others    | 3.58 | 1.48% | 9.85%  | 29.06% | 48.28% | 11.33% | 6 |
| Working environment (noise, vibration ) | 3.52 | 1.98% | 12.38% | 30.20% | 42.08% | 13.37% | 7 |
| Feeling shy to speak English            | 3.36 | 5.37% | 19.02% | 22.44% | 40.98% | 12.20% | 8 |

#### 4.5 Participants' Suggestions for improvement

Around 90% of the questionnaire respondents (n=235) suggested that maritime English learners practise English frequently and freely in an English speaking environment. Table 5 shows that 'Immersing in an English learning environment', 'speaking freely' and 'practicing frequently' were the top three suggestions for improving English communicative competence. The needs from the respondents focused on oral communication which is contrary to the reading skill-focused MEET in China featured by explaining vocabulary and grammar. In reality, oral communication accounts for more than 85% of the total communication for a deck officer onboard (Trenkner, 2002). In most cases, there is a great lack of interactions in English in the classroom (Pan, 2004, Guo et al., 2008). Maritime English teachers need to design sufficient interaction activities in the classroom to cater for the needs of English learners. Besides the physical English learning environment in the classroom, a virtual English learning environment can be established with the aid of information technology. This can provide additional opportunities for maritime student to practice English.

Besides, instead of focusing on learning vocabulary, grammar and exam questions (Guo et al., 2008, Li, 2008, Wang and Fu, 2007), maritime students can be motivated by 'learning English from examples of real-life maritime communication at sea' which was strongly suggested by the questionnaire respondents of this research. This finding corroborated the needs for authentic teaching materials in an ESP course (Gatehouse, 2001, Carver, 1983). Examples of real-life maritime communication at sea can be sourced from free online materials, for example, the case studies found on the website of Maritime Insight. Wang and Fu (2007) claim

that authentic audio-visual teaching materials should be used for maritime English teaching and learning. In 2016, a book titled 'A Maritime English Video Course' was published as the first video-based maritime English book in China providing all real-life videos related to seafarers' life and work onboard (CCP, 2016). All the 66 videos were shot by two maritime English teachers on a container vessel with the support of China COSCO Shipping Corporation Limited. This book is a self-compiled textbooks completed by a project team at Qingdao Ocean Shipping Mariners College. This book can to some extent meet the demand for examples of real-life maritime communication at sea from Chinese maritime students.

It was suggested by the questionnaire respondents that foreign lecturers with maritime backgrounds be employed in maritime education and training institutes. There are foreign teachers who teach general English rather than maritime English. In most cases, foreign teachers are assigned for English-majored students. As mentioned in Section 4.3.1, the first-year maritime students who are under the management of English department can also benefit from the English teaching of foreign teachers. Foreign teachers can be a valuable source of foreign cultural knowledge in class. Although foreign teachers are not the solution to the problem facing Chinese maritime education and training institutes, both Chinese teachers and foreign teacher can work together to teach maritime English to the full. Sung (2014) finds that foreign teachers can incite more interactive activities in the forms of group work and oral communication compared to Chinese teachers. This can address the issue of lack of interactive activities in maritime English classes (You, 2012a).

Table 5. Suggestions for improving English communication ability from Chinese seafarers

|   | Mean | Degree of Agreement (n=235)             |       |       |        |        | Rank |
|---|------|---|-------|-------|--------|--------|------|
|   |      | (1=Strongly disagree, 5=Strongly agree) |       |       |        |        |      |
|   |      | 1                                       | 2     | 3     | 4      | 5      |      |
| Immersing learners in an English speaking environment | 4.34 | 1.03%                                   | 0.00% | 7.22% | 47.42% | 44.33% | 1    |
| Encouraging learners to speak freely                  | 4.31 | 0.52%                                   | 1.55% | 8.81% | 45.08% | 44.04% | 2    |
| Encouraging learners to practice English frequently   | 4.27 | 1.04%                                   | 1.04% | 9.33% | 47.15% | 41.45% | 3    |

|   |      |       |       |        |        |        |   |
|---|------|-------|-------|--------|--------|--------|---|
| Learning English from examples of maritime communication in reality | 4.17 | 0.52% | 1.55% | 13.40% | 49.48% | 35.05% | 4 |
| Using foreign lecturers with maritime background                    | 4.03 | 2.06% | 4.12% | 11.86% | 52.58% | 29.38% | 5 |

The 25 Maritime English teachers interviewed also provided their views on improving the quality of maritime English education and training. Almost all of them (96%, n=25) suggested that the existing maritime English exams need to be changed to focus on English communicative competence. This change is in response to the emphasis of IMO Model Course 3.17 for Maritime English on the principles of communicative teaching and learning approach (IMO, 2015). This approach has been widely implemented in maritime English teaching and learning in Ukraine and the European countries (Zeifrid, 2011, Demchenko, 2014). Fourteen out of the 25 maritime English teachers agreed that they were constrained by a monotonous and boring exam-oriented teaching and learning mode. 'What is assessed becomes what is valued, which becomes what is taught' (McEwen, 1995). Exams can have a positive washback on teaching if exams can get students to focus on textbook lessons. On the contrary, the washback can be negative if teachers teach to the exams in order for their students to achieve high scores in exams (Djurić, 2015). As mentioned in Section 4.3.1, over half of the 25 maritime English teachers interviewed spent half of lesson/teaching time teaching students how to respond to exam questions and one of them even spent all teaching time on exam questions. Consequently, maritime students would not receive sufficient knowledge of communicative competence. As such, maritime English exams would have a negative washback on maritime English teaching and learning.

## 5. Conclusion

The majority of the maritime English teachers interviewed in this research felt greatly dissatisfied with their graduates' English communicative competence. The reasons were attributable to maritime English teachers and students themselves and the maritime English education and training system in China. The prominent issues were the impractical maritime English examination system and the concomitant exam-oriented teaching and learning approach. The MEET did not contribute much to improving the English communicative

competence of Chinese seafarers. Maritime English teaching and learning was largely for the purpose of passing the national examination and the results of the maritime English exams did not reflect the true level of communicative competence. Chinese maritime students' insufficient practice of English, especially a lack of interactive communication practice, resulted in the English deficiencies. Other reasons include the lack of quality maritime English teaching staff and the use of inappropriate teaching materials.

As suggested, the national maritime English examination needs to be revised in the first place. The oral examination needs to be highlighted rather than the written one. The lack of oral English communication ability of Chinese seafarers makes it difficult for them to pass job interviews in English and is one of the main barriers for Chinese seafarers to compete in the international maritime labour market. Great importance needs to be placed on encouraging and facilitating interactive communication in English by maritime English teachers. It is essential for students to familiarise themselves with the real communication environment onboard, such as foreign accents, slangs and multicultural elements. Real-life communication scenarios need to be introduced for practice and training. Maritime English teachers need to be trained to play a central role in carrying out these interactive activities and enhancing students' engagement and participation.

This empirical study contributes to a better understanding of maritime English education and training in China. It investigated the causes and solutions of English communicative incompetence with empirical evidence. The findings of this study can be referred to by stakeholders involved so as to improve the communicative competence of Chinese seafarers. The competitiveness of Chinese seafarers in the international maritime labour market can be hence improved. It is hoped that this research can provide a general guidance or direction for maritime English education and training in China. Further research can be conducted on the implementations by maritime English teaching practitioners.

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## Chapter 5 Discussion and conclusion

Chapter four investigated the current English communicative competence of Chinese seafarers, highlighted the significance of communicative competence of Chinese seafarers in their employment in the international maritime labour market and provided recommendations for improving the maritime English education in China. This chapter discusses the results and findings of Chapter four in light of the existing literature. Then, research contributions and limitations are discussed before recommendations for further research are provided.

### 5.1. The current level of communicative competence of Chinese seafarers

Both employers and maritime English teachers interviewed in this research believed that the current level of communicative competence of Chinese seafarers was poor or very poor. They also agreed that the communicative competence of Chinese seafarers had been gradually declining in recent years. This finding is in contrast to the claim in the literature that the English proficiency of Chinese seafarers has been improved owing to an increased emphasis on and investment in maritime English education and training in China (Sakhuja, 2011, Tang et al., 2016). Different from the views of maritime English teachers and employers, the Chinese seafarer respondents in this research believed that their English communicative competence was generally fair. The discrepancies indicate that different expectations of communicative competence existed among the three participant groups. Different participant groups tend to have their own basis of reference when assessing the English communicative competence.

The employers assess the English communicative competence from the professional points of view. Foreign employers, who are directly responsible for their ships and property onboard, placed much more emphasis on practical aspects of communicative competence of seafarers. They expect that both internal and external communications must be effective to ensure a

safe, secure and efficient operation of their ships. External communication, either ship-to-ship or ship-to-shore communication, is carried out via electronic communication devices onboard (Astratinei and Balagiu, 2015). Any misunderstanding occurred during the real-time external communication can pose a threat to safe navigation and even lead to hazards, incidents and accidents. A ship can be delayed or even detained if satisfactory documentation or explanation is not provided to port state control officers due to English communication deficiency. Similarly, internal communication which involves all communication for daily use at work and in life cannot be underestimated. Communication failures during daily communication at work and in life can affect work productivity (Papachristou et al., 2015) or lead to wrong operations, thus posing a danger to a ship and those on board. Since it is common for one ship to be crewed with seafarers of different nationalities, the adaptability in a multilingual and multicultural environment onboard is emphasised by foreign employers.

Regarding the English communicative competence, the views of maritime English teachers have more academic implications compared to that of professional employers. Since most maritime English teachers are recruited from graduates who are specialised in English linguistics, they tend to have little or no sea experience. Without sufficient knowledge of the real-life communication environment on board, maritime English teachers with linguistics background tend to be influenced by their own English learning experience when teaching and evaluating maritime English. As such, it can be seen that Chinese seafarers were poor or very poor in English communicative competence from both academic and professional points of views.

Chinese seafarers tend to perceive their communicative competence based on their own capability and self-expectations. Most Chinese seafarers, especially those who had no sea experience on foreign ships, have lower expectations of communicative competence since they are not familiar with the real-life communication in a multilingual and multicultural environment on board. Consequently, they do not have a clear benchmark or do not understand what is expected of them except that they must pass a standardised examination. It is not surprising that the questionnaire respondents in this study emphasised the needs of learning practical English in order to familiarise students with the real-life communication environment on board.

For both maritime English teachers and students, it is their interests and priority to pass the maritime English examinations. Foreign employers on the other hand are concerned about the safety of the ships and commercial interests while complying with various international regulations. It is hard to expect maritime English teachers and students to have the same level of expectations with foreign employers if the examinations are inconsistent with requirements of foreign employers. Consequently, the majority of Chinese seafarers cannot meet the expectations of foreign employers on communicative competence.

In order to meet the expectations of foreign employers who normally represent the international shipping industry needs, maritime English education and training institutes should develop corresponding learning outcomes. The corresponding changes need to be made to the existing teaching materials, learning activities and assessments. There is a need for close cooperation and communication between maritime education and training institutes and foreign shipping companies. For example, shipping companies can provide real-life communication information by recording bridge conversations for the purpose of maritime English education and training.

Since current maritime English education and training cannot meet the expectations of foreign employers, some foreign employers interviewed in this research found it difficult to recruit sufficient communicatively-competent Chinese seafarers. Most of the Chinese seafarers find it difficult to adapt in a multilingual and multicultural environment onboard. In order to overcome this difficulty, one foreign employer interviewed in this research had to man ships with a single nationality of Chinese. Even so, as he stated, only 10% of applicants who were recommended by crewing agents could meet the requirement of foreign shipowners regarding English communicative competence. One drawback of this single nationality crewing strategy is that Chinese seafarers still have limited opportunities to improve their adaptability in a multilingual and multicultural working environment onboard.

## **5.2. Main causes of communicative incompetence**

Although the causes of the communicative incompetence were perceived differently by different participant groups, all the highlighted reasons involved are attributed to different stages of the entire maritime English education and training process. Generally, Figure 5.1 presents an overarching picture of the process of maritime English education. The process is



categorised into four stages in order to explore the problems at different stages. The overall maritime English education generally follows the four steps of supply, inputs, process and outputs. Regarding contributing factors to communicative incompetence, different participant groups had different emphases that are presented at different stages of maritime English education. Figure 5.1 shows the contributing factors include the poor English foundation of maritime students, the impractical maritime English textbooks and examinations and maritime English teaching and learning deficiencies. Since some participants of maritime English teachers mentioned the English foundations of students before enrolling in maritime institutes, the author categorised this aspect as “supply” of maritime students before they receive maritime English education. The “input” here mainly refers to what materials have been provided to improve students’ maritime English communicative competence, i.e., teaching materials and the examination contents. In the “process” category which mainly refers to the teaching activities, “lack of qualified maritime English teachers” results in the “exam-centred teaching and learning”, which in turn, leads to “neglecting the industry requirement” since the examination questions are not related to practical needs of communication at sea.

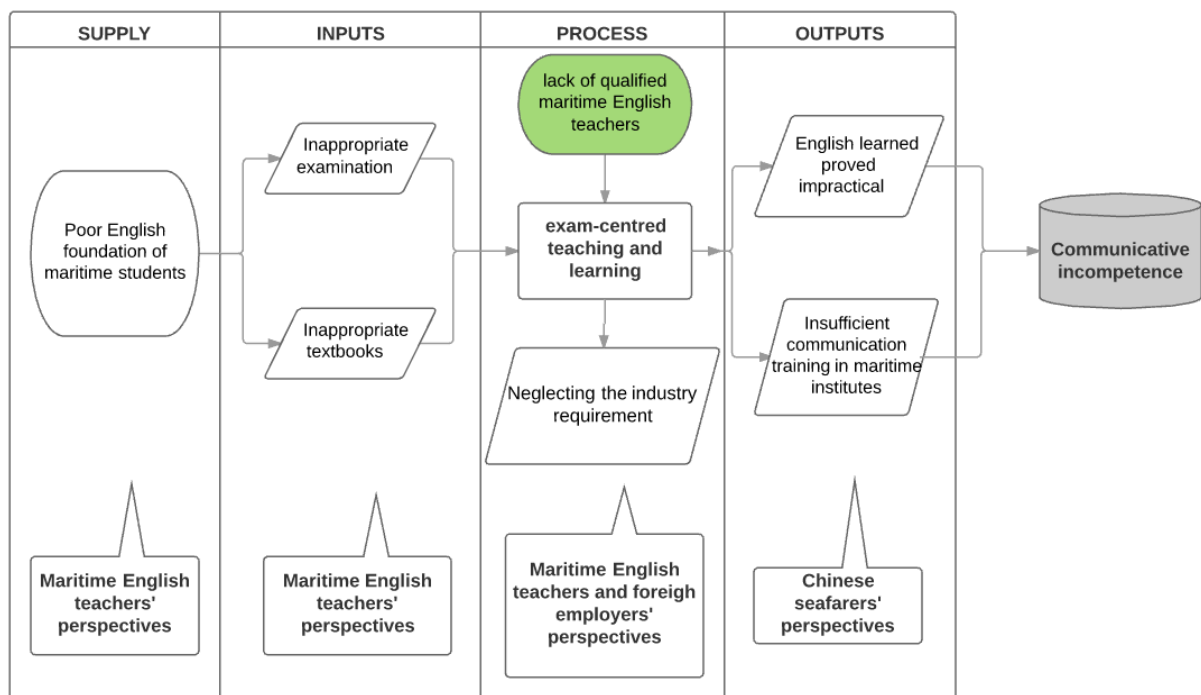


Figure 5.1 Main reasons for communicative incompetence

### 5.2.1. Poor English foundation of maritime students

Most maritime English teachers claimed that it was really difficult to teach English to maritime students who had received poor English education in their former learning. They also claimed that the trend showed that the English foundation of newly enrolled maritime students had gradually become weaker in recent years.

This trend is attributable to an increasing number of maritime students recruited from central, western and other remote areas of China where students generally receive a relatively low level of English education. The lower level of English education in these areas is associated with the less developed economies in these regions, which limit their investment in English education, such as supply of quality English teachers and English learning facilities. The trend of recruiting maritime students from remote areas of China is mainly explained in this thesis from the following three aspects: the unattractiveness of a seafaring career, the effect of one-child policy and the increasing number of higher education institutes.

The competitive wage advantage of Chinese seafarers over land-based workers is diminishing due to the over-30-year rapid economic development in China. Since Chinese maritime students regard high wage as the most attractive factor for them to choose a seafaring career (Fei and Lu, 2015), seafaring is no longer attractive to young people, especially those from coastal areas where the income level is relatively higher compared to inland areas. In the central, western and other remote areas of China featured by relatively low income levels and lack of job opportunities, seafaring is still seen as an attractive career for young people. Besides, it is considered to be a good choice for these young people to seek employment in the less competitive maritime labour market. With the fast development of economy in China, the attractiveness of a seafaring career may continue to weaken.

The over-30-year one-child policy has gradually reduced the supply of students in Chinese tertiary education. On the one hand, the total number of higher education institutes increased to 2,852 and student enrolment numbers reached 36,470,000 in 2015, a 17.5% increase compared to that in 2010 (Xinhua, 2015), but on the other hand, the total number of high school graduates participating in entrance examinations for tertiary education dropped from 10,610,000 in 2008 to 9,400,000 in 2016 while the enrolment rate increased from 57% in 2008 to 75% in 2016 (Askci, 2016). The high enrolment rate indicates a fierce

competition between tertiary education institutions for talented high school students. This competition presents a great recruitment pressure on the maritime tertiary education institutes in China. In order to survive, many maritime education and training institutes continue to lower their entry requirements. The lowered entry requirements have allowed students from central, western and other remote areas of China to receive maritime tertiary education.

### 5.2.2. Impractical maritime English textbooks and examinations

Maritime English teachers interviewed were mainly concerned about the misalignment between maritime English textbooks and the examinations. It means that the mastery of content knowledge in the textbooks cannot help students pass the examinations since the examinations test technical knowledge that is sparsely covered in the textbooks. The misalignment places both teachers and students in a dilemma. Most teachers interviewed in this research spent half of class time teaching textbooks and the other half teaching exam questions.

Around 90% of the maritime English teachers interviewed used the unified textbooks designed by CMSA across the nation. In China, English textbooks still served as the main teaching materials for improving students' level of English and they play an important role in delivering English knowledge (Liu, 2015). The use of standardised maritime English textbooks and examinations reflects a typical feature of a standardised education mode in China (Yu and Jiang, 2017). Using standardised maritime English textbooks is preferable since the communication of seafarers at work is largely standardised, such as the introduction of the SMCP. However, if the design and content of the standardised maritime English textbooks go wrong, the results of maritime English education across the nation can be disastrous.

The maritime English textbook designed by CMSA is a technical knowledge-based one. A tiny portion of nautical knowledge related to each subject, such as seamanship, cargo transportation and marine meteorology, is extracted from relevant sources and put together to form a master book to touch all seafaring knowledge. Rather than language learning textbooks, the maritime English textbooks are similar to subject books for nautical science used in native English speaking nations. Other maritime English textbooks share the similar features.

Similarly, both the form and content of maritime English examinations hardly test learners' communicative competence. It is a maritime test in English rather than an English test in the maritime context. Besides, almost all the nautical knowledge is tested in the form of multiple-choice questions. The test form is similar to that of a multiple-choice grammar test. This format can result in rote learning which will discourage learners from intellectual thinking (Drown et al., 2006), and does not help maritime students develop their communicative competence (Drown et al., 2013). Since the multiple-choice questions cover almost all nautical knowledge for seafarers, the answers to the multiple-choice questions can hardly be found in maritime English textbooks. Both maritime English teachers and students have to rely on the multiple-choice test bank from which most exam questions are chosen. The test bank is scattered and partially available to teachers and students. Students have to gather as many questions as possible to increase the chance of encountering the original questions in exams.

### 5.2.3. Maritime English teaching and learning deficiencies

Most maritime English teachers placed examinations as their absolute priority and chose the exam-orientated teaching methods. Due to an examination-oriented education system which is deeply rooted in China (Yung, 2015), Chinese students in general are under tremendous pressure to memorise taught materials in a limited time rather than spending time to develop creativity and critical thinking (Cheng, 2012, Ma and Rapee, 2015). Maritime students are no exception. It is not surprising that, among others, an impractical maritime English examinations system and a stultifying maritime English teaching method were highlighted by the respondents of Chinese seafarers in their feedback on maritime English education.

Most crewing agents interviewed normally went to maritime education and training institutes every year to recruit maritime graduates and found that there was a shortage of quality maritime English teachers in China. Some maritime English teachers interviewed also admitted that they were not fully qualified. The ideal maritime English teachers should have both academic and professional qualifications. The qualification of maritime English teachers has not been much upgraded despite rapid development in maritime education and training in China over the past two decades.

In China, a captain or chief engineer can find a good job on shore, thus having little motivation for further education. In addition, the system in China requires that people who want to do a Doctorate degree (PhD), for example, need to attain a Master's degree first and part-time study is not very common in China which means that a captain or chief engineer will need to spend at least 6 years (without any income) to get a PhD degree. On the other hand, those who have a PhD qualification (normally from English education) would not bother to spend time at sea. As a result, maritime English is delivered mainly by those teachers without either sea experience or a PhD degree. The significant increase in student enrolment required large number of teaching staff if the class size was maintained. The considerable increase in the demand of maritime English teachers within very short period of time left some maritime education institutes no choice but to recruit less qualified teachers. Alternatively, some maritime education institutes had to increase the workloads of the existing maritime English teachers. Furthermore, since people value science and technology more than humanities and arts (Jiang, 2015) and English ability belongs to the so called 'soft' skills, maritime English teaching has not been taken seriously. In China, great emphasis is placed on nautical subjects rather than maritime English.

From the above discussions on the supply, inputs and process of maritime English education, a satisfactory output of maritime English education can hardly be expected. The outcomes of Maritime English education and the expectations of the industry employers have drifted further apart. The reality is that Chinese seafarers considered that the English they learned at maritime education and training institutes was impractical at work and in life and foreign employers were reluctant to employ Chinese seafarers due to their poor English communicative competence. Although literature (Tang et al., 2016, Wu et al., 2013) suggests that the control of Chinese crewing agents, as a third party between foreign employers and Chinese seafarers, is the main barrier for Chinese seafarers to compete in the international maritime labour market, this research found that the incompetence of Chinese seafarers in English communication was the main concern.

### **5.3. Recommendations for improving English communicative competence**

Based on the reasons discussed in Section 5.2, the recommendations for maritime English education focus on four aspects: 1) maritime English assessments, 2) maritime English

teachers, 3) maritime English teaching and learning and 4) maritime English teaching materials.

### 5.3.1. Recommendation for maritime English assessments

Currently, the CMSA manages the whole examinations system and develops the teaching materials. Normally, the CMSA invites a small number of maritime English experts to design and develop maritime English examination questions and textbooks. According to the feedback on maritime English examinations and textbooks from both teachers and Chinese seafarers in this research, the existing examination questions and teaching materials need to be revised to meet the actual demand in the international shipping market.

Since English listening and speaking accounts for more than 85% of the total communication tasks a deck officer has to cope with on board and in the harbor (Trenkner, 2002), an oral examination should be an important component of the final assessment for the issue of Certificates of Competency (CoC). Regarding the oral examinations for seafarers, the practices of Australian Maritime Safety Authority (AMSA) can be referred to (AMSA, 2013). For AMSA, the oral examination is treated as an important part of the overall assessment of the candidate's competence as well as his or her ability to communicate ideas, commands and actions. Accordingly, maritime English oral examination for a CoC can be conducted by qualified examiners based on an oral examination syllabus and checklist rather than a relatively confined exam question bank. The examiners should have no direct relationship with the candidates. The candidates' maritime English teachers, for example, cannot be their examiners for a CoC. Recruiters in shipping companies, for example, can be examiners registered with and administrated by CMSA. Regarding oral test examiners, the practices of the International English Language Testing System (IELTS) can also be referred to. As such, maritime students who pass the exams can meet the communication demand in the global shipping industry. The normal maritime English exams for the purpose of academic achievement rather than for a CoC can still be conducted by maritime English teachers.

As a significant part of the MEET reform movement in Ukraine, the adoption of non-multiple-choice format has proved to be successful to assess maritime student performance (Khattari et al., 2012). Similar to Turkey, Ukraine places great importance on assessing maritime students' abilities to perform real-life tasks onboard (Zeifrid, 2011). For maritime English

written exams, Chinese maritime students should be required to write short essays in English rather than simply completing multiple-choice questions throughout the exam. Such assessments would encourage students to develop capability in conveying ideas and thoughts, and constructing arguments in English, thus improving their ability in using English in the maritime context.

### **5.3.2. Recommendation for improving the quality of maritime English teachers**

Ding (2015) analyses the strengths and weaknesses of two main sources of maritime English teachers in China. One source is English teachers who have a linguistic background with limited or no maritime knowledge. The other source is ship officers with little or no skills in teaching the language. Through self-learning or training, the former can gain some maritime knowledge and the latter can obtain some skills in teaching the language. There has been a long lasting debate on which group suits better for teaching maritime English. Some institutes employ teachers from the linguistic background while others choose to recruit people with seafaring experiences. As a branch of ESP, maritime English still belongs to language education and it is preferable for English teachers to deliver maritime English courses. However, they need sufficient professional training in teaching English in the maritime context. Teachers of seafaring background need to improve their English proficiency to be competent in teaching maritime courses bilingually. As such, different types of teachers can best utilise their own strengths.

Similar to China, Turkey experienced a shortage of qualified maritime teachers and their maritime English education was not successful. However, maritime English education has become successful through international collaboration (Demirel and Ziarati, 2010). For example, under the EU-founded MarTEL project, native-English-speaking teachers from maritime education institutes were invited to join the teaching teams in Turkey. The mixed culture environment was beneficial to both maritime English teachers and students in improving maritime English proficiency and cultural awareness (Demirel and Ziarati, 2010). A similar example can be found in Ukraine. Successful models of maritime English education in non-native English speaking nations can be referred to by maritime education and training institutes in China.

### 5.3.3. Recommendation for maritime English teaching and learning

Currently, maritime education and training in China is mainly conducted in Chinese. Maritime English courses in most maritime institutes are not taught in English either (Xue et al., 2012). Instead, simple exam-oriented and translation teaching are common in maritime English classes (Fu, 2010, Shen and Wang, 2011). In class, English teachers normally translate and interpret the technical texts from English to Chinese in order to help students understand the meanings of the texts. To meet the enormous demand of translators in China, the prevailing translation teaching practice plays a big part in English linguistics education (Tao, 2016). Since many maritime English teachers are sourced from English linguistics graduates, maritime English teaching is to some degree influenced by the translation teaching methods. Without sufficient interactions in English, there is a lack of an English speaking environment in class. Besides, there is a limited English speaking environment off class in China (Liang and Xu, 2013). The importance of such environment is well reflected by the questionnaire participants' desire for 'Immersing learners in an English speaking environment'. English teaching and learning should not be limited to English courses only. Maritime English teaching and learning should be, to some degree, extended to some other maritime courses, so that maritime students can be exposed to a relatively intensive English learning environment across some maritime courses.

The advancement in educational technologies provides maritime English education and training with the opportunities to utilise large amount of open resources and employ diverse methods in learning and teaching. Maritime English learning resources are readily available online, such as MarEng PLUS (2008-2010) and The SeaTALK, and testing resources, such as MarTEL and IMETS (International Maritime English Testing System). Taking linguistic and cultural diversities into account, the CAPTAINS project, for example, aims to create a knowledge base of real-life 2D/3D scenarios with respect to effective communication in English among seafarers (Ziarati et al., 2011). Learners can interact with the virtual environment under various authentic scenarios.

These interactive online learning activities can help address the problem of lack of interactive communication training found in this research. As opposed to the traditional maritime English teaching environment in China, online maritime English learning can provide learners with



opportunities to communicate with their peers from different nationalities which help familiarise learners with different accents and cultures. These online activities may better engage and motivate students in their maritime English study (Wet, 2013). Consequently, online learning activities may supplement the traditional maritime English teaching in China.

#### **5.3.4. Recommendation for maritime English teaching materials**

Maritime English teaching materials should not be limited to maritime English textbooks. Maritime English teachers need to take their initiatives to update teaching materials with online resources available. Furthermore, maritime textbooks can be written in both Chinese and English (bilingual). The bilingual textbooks will present a challenge to both teachers and students who get used to maritime textbooks written in Chinese. However, students can benefit more in learning by integrating content with English elements than if they were to learn subject knowledge and English language separately (Pyne, 2011). Currently, only maritime English textbooks are written in English and other maritime textbooks are written in Chinese. The bilingual textbooks for maritime courses can also facilitate the implementation of a 'content and language integrated learning and teaching initiative' proposed by Pyne (2011) for Chinese maritime students. As such, a suggestion for a combination of English and bilingual education is made to improve maritime English education in China. Figure 5.2 summaries the procedures of combining English and bilingual education as discussed in this section.

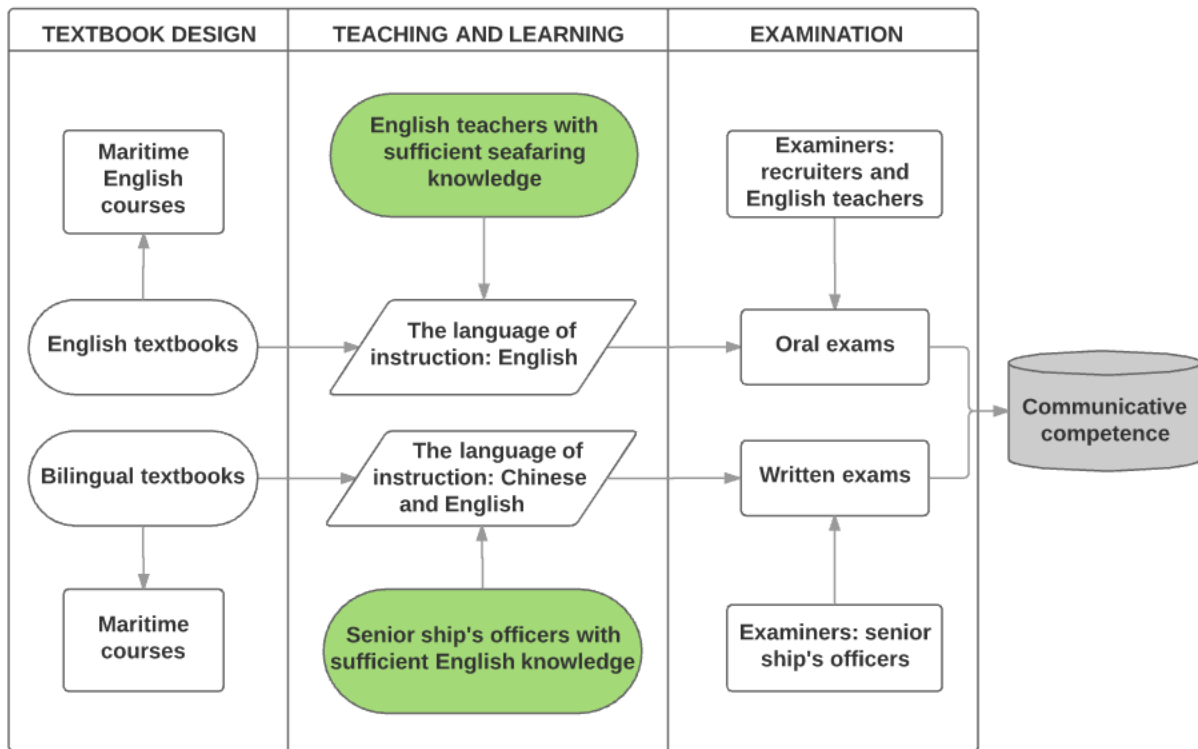


Figure 5.2 Combination of English and bilingual education

As a branch of ESP, Maritime English is a multifaceted and cross-disciplinary course involving various aspects of maritime knowledge and other aspects related to communications in a multilingual and multicultural environment on board. The massive information can hardly be covered in one traditional textbook. Around 70% of the textbook users agreed that the traditional textbooks were not appropriate for mariners' communication training programs (Demirel and Ziarati, 2010). The traditional maritime English textbooks alone seem to be inappropriate for maritime English education in China. There are web-based maritime English learning materials that may be suitable as complementary materials such as MarEng Plus (2008-2010) and the CAPTAINS project (Communication and Practical Training in Applied Nautical Studies) (2010-2012).

As an important component of communicative competence, intercultural knowledge needs to be incorporated into the contents of maritime English teaching materials. Besides foreign cultures, domestic cultures cannot be neglected due to the fact most Chinese students cannot share Chinese culture in English with foreigners (Liu, 2015). This can be explained by both a lack of Chinese cultural knowledge and English knowledge to express Chinese culture. This phenomenon is termed as 'aphasia of Chinese culture' by Cong (2000) who suggests

incorporating domestic cultures into foreign language teaching. Like understanding foreign cultures, it is equally important for Chinese seafarers to share Chinese cultures in English with foreign peers.

#### 5.4. Research contributions

First, this research provides empirical evidence supporting the claim in the literature (Ziarati et al., 2009b) that most Chinese seafarers face the English communication problem, mainly referring to linguistic competence, which is considered to be one of the main barriers for Chinese seafarers to compete in the international labour market. Furthermore, this thesis is the first to provide empirical evidence on the communicative competence of Chinese seafarers and its effect on their employment in the international maritime labour market.

Second, this research developed a framework of communicative competence in the maritime context. The framework led to a better understanding of communicative competence of oceangoing seafarers in China. The framework of the communicative competence is adaptable for seafarers in other countries since the main components of communicative competence are similar. It is seen from the literature that the research on maritime English is mainly limited to linguistic and multicultural aspects. This thesis has extended the research to include five aspects of communicative competence.

Third, regarding maritime English education in China, there is limited feedback from Chinese seafarers. This research contributes to the literature by investigating the views on maritime English education from both maritime English teachers and Chinese seafarers nationwide.

Lastly, the research provides a clear picture of the current level of communicative competence of Chinese seafarers and a better understanding of the existing maritime English education in China. The findings may be of interest to a range of stakeholders including maritime English teachers and students, senior managers in METs, policy makers in the maritime industry, and industry employers. It is expected that recommendations provided in this research can help to improve the communicative competence of Chinese seafarers, which in turn, improve their competitiveness in the international maritime labour market.

### 5.5. Research limitations

There are a few limitations in the research. The questionnaire respondents' perceptions of their communicative competence might not provide an accurate picture of their actual competences because respondents tend to overestimate or underestimate their performance (Boud and Falchikov, 1989). Accurate measurement of seafarers' communicative competence may require a different assessment tool.

Since the questionnaire was web-based and completed online, bias may exist due to the possibility that some seafarers did not often use the internet, especially the older generation of seafarers. Besides, the completion rate of the online questionnaire was around 30% and most of them dropped out near the end of the questionnaire. The reason could be explained by the feedback from a few respondents that the questionnaire was too long. If the questionnaire was not completed, it was treated as a nonresponse. Lack of response to the questionnaire by potential respondents may cause nonresponse bias (Fincham, 2008).

Despite the random sampling and reasonable sample size, the research may still have the limitation in generalizability due to a limited number of participants in the qualitative analysis. Generalizability indicates that the findings of a research can be applicable to a wider population or to different settings (Green and Thorogood, 2004). As such, the views from the interviewees might not well representative of the entire population.

### 5.6. Recommendations for future research

The framework of communicative competence can be converted into an implementation guide for practitioners. However, it presents a great challenge to teach and assess the psycholinguistic, strategic and pragmatic competences. Future research may investigate how to operationalise the framework of communicative competence and how to apply it to maritime English teaching and learning and assessments.

Online technology plays an important role in English education and some nations, especially in EU, have made substantial progress in maritime English education with the aid of online technologies. However, a traditional English teaching and learning mode is still maintained in maritime English education in China and proved to be unsatisfactory. Future research may investigate innovative learning and teaching methods in maritime English education in China

and the effectiveness of these methods in improving communicative competence of Chinese seafarers. Although there are great challenges facing maritime English education and training in China, all the research on improving the communicative competence of Chinese seafarers is worthwhile and significant in improving the safety of shipping and protecting the marine environment.

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Appendix 1 has been removed  
for copyright or proprietary  
reasons.

It has been published as: Fan, L and Fei, J and Schriever, U and Fan, S, "Investigate the possible Impacts of differential seafarers' career progression on seafarer competence in China", Proceedings of the 15th Annual general assembly International Association of Maritime Universities - Innovation in Maritime Education, Training and Research, 27 - 30 October, Australian Maritime College, Launceston, Tasmania, pp. 206-213. ISBN 978-0-9806391-4-8 (2014)

## Appendix 2: Ethics Approval

Social Science Ethics Officer  
Private Bag 01 Hobart  
Tasmania 7001 Australia  
Tel: (03) 6226 2763  
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Katherine.Shaw@utas.edu.au




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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

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26 May 2015  
Dr Jiangang Fei  
National Centre for Ports and Shipping Australian Maritime College  
Locked Bag 1397

Student Researcher: Lidong Fan

Dear Dr Fei  
Re: MINIMAL RISK ETHICS APPLICATION APPROVAL  
Ethics Ref: **H0014968 - The Role of Communicative Competence of Chinese Seafarers in  
Improving Their Competitiveness in the Global Maritime Labour Market**

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We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 26 May 2015.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.
2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or [human.ethics@utas.edu.au](mailto:human.ethics@utas.edu.au).

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.
5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**
6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'KShaw', is positioned above the printed name.

Katherine Shaw Executive Officer  
Tasmania Social Sciences HREC

## Appendix 3: Questionnaire questions (English version)

Dear seafarers,

You are invited to participate in this online survey about the status of Chinese seafarers' communicative competence in English with an aim to develop strategies to improve their competitive competence in English so as to improve their competitiveness in the international maritime labour market. Your input is regarded as highly valuable to this research as it will help identify the role of communicative competence of Chinese seafarers in improving their competitiveness in the global maritime labour market.

The survey, comprising eight sections mainly in the form of multiple-choice questions, will take approximately 20 minutes in total to complete. The questions include the current level of communicative competence, the factors affecting the communicative competence and its effect on their employability in the international maritime labour market. The survey is anonymous and your responses to this survey will be entered directly into our database and treated as completely confidential. If you have any questions, please contact the student investigator Lidong Fan (lidong.fan@utas.edu.au). This survey is approved by the Tasmanian Social Science Human Research Ethics Committee (HREC). The ethics reference number is H0014968.

Thank you for your valuable contribution in advance.

Student investigator: Lidong Fan  
National centre for ports and shipping  
Australian Maritime College  
June 2016

## **A. General information**

A.1. What is your educational qualification?

1. High school Certificate
2. Advanced diploma
3. Bachelor
4. Master degree

A.2. What is your age?

1. 18-25 years
2. 26-40 years old
3. 41-55 years old
4. 56 years old and above

A.3. What's your seafarer's rank?

1. Captain / Chief Engineer
2. Chief officer/second engineer
3. Second officer/third engineer
4. Third officer/fourth engineer
5. Cadet
6. Rating
7. Other (Please specify)

A.4. Have you worked on vessels with seafarers of diverse nationalities?

1. Yes
2. No

A.5. If yes to the previous question, how long is your common contract?

1. Less than 6 months
2. 6-9 months
3. 10-12 Months
4. More than 12 months

A.6. If yes to the previous question, how many contracts have you signed?

1. 1
2. 2
3. 3
4. 4
5. More than 5

A.7. How long have you worked on board in total?

1. 1 year
2. 1-3 years
3. 4-6 years
4. 7-10 years
5. More than 10 years

**B. How do you rank your linguistic ability?**

|     |           |      |      |      |           |
|-----|-----------|------|------|------|-----------|
| B1. | Very poor | Poor | Fair | Good | Very good |
|-----|-----------|------|------|------|-----------|

|   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| How do you rank your daily English listening ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B2.  | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your daily English speaking ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B3.   | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your daily English reading ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B4.   | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your daily English writing ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B5.  | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your maritime English listening ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B6.   | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your maritime English speaking ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B7.  | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your maritime English reading ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| B8.  | Very poor                | Poor                     | Fair                     | Good                     | Very good                |
| How do you rank your maritime English writing ability? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**C. As to intercultural aspects, to what extent do you agree or disagree with the following statements?**

|  |                          |                          |                            |                          |                          |
|--|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
|  | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
| C1.I have some knowledge of foreign cultures | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |



|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| C2. When communicating with foreign seafarers, I will be aware of their cultural differences | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C3. I know some celebrities or famous tourist sites in foreign countries                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C4. I can use simple greetings in more than two foreign languages                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C5. I am willing to share Chinese culture with foreign seafarers                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C6. I tend to learn foreign cultures by communicating with foreign seafarers.                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C7. I tend to speak English with Chinese seafarers when foreign seafarers are present        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C8. I tend to actively greet foreign seafarers on board                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C9. I tend to learn their work style by communicating with them                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**D. As to psycho-linguistic aspects, to what extent do you agree or disagree with the following statements?**

|   | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
|---|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| D1. I tend to speak Chinese with shipmates whenever I can   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D2. I tend to communicate in English with shipmates to relieve homesickness when I cannot use my own language | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D3. I tend to communicate in English with shipmates to relieve depression when I cannot use my own language   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D4. I tend to communicate in English with shipmates to relieve work stress when I cannot use my own language  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D5. I feel confident in communicating in English with other seafarers   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D6. I can remain calm when communicating in English in emergency  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| D7. I will not pay undue attention to grammatical mistakes when communicating in English                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |

**E. As to strategic communication, to what extent do you agree or disagree with the following statements?**

|   | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
|---|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| E1.I tend to use body language when communication difficulties occur              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| E2.I tend to seek alternatives to explain my ideas when the conversation is stuck | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| E3.I tend to use simple English for communication rather than complicated one     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| E4.I have a sense of humour in communication                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| E5.I tend to communicate in an indirect way to avoid any offensiveness            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| E6.I have learned some basic strategic communication skills                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |

**F. As to pragmatic competence, to what extent do you agree or disagree with the following statements?**

|   | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
|---|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| F1.I often seek opportunities to practice English with foreigners   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| F2.I often watch original English movies or listen to English songs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| F3.I often speak English on various occasions                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| F4.I often read materials in English                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| F5.I often write in English   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |

**G. How important are the following elements in relation to your employability on foreign-flagged ships?**

|                                    | Unimportant              | Slightly important       | Moderately important     | Important                | Very important           |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Daily English listening ability    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Daily speaking English ability     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Daily English reading ability      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Daily English writing ability      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English listening ability | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English speaking ability  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Maritime English reading ability               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English writing ability               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Passing China College English Test (CET 4)     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communicative competences ( oral and written ) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intercultural Communicative Competence         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Loyalty to the company                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Work commitment and dedication                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Teamwork awareness                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Leadership                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ship professional knowledge and skills         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Personal relationship with shipmates           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Other important factors in relation to your employability on foreign-flagged ships

**H. In relation to your maritime English education and training, to what extent do you agree with the following statements?**

|   | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
|---|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| I obtained sufficient linguistic knowledge at my maritime institution (such as pronunciation, grammar, lexical knowledge, etc.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| I received sufficient intercultural training at my maritime institution   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| I gained sufficient strategic communication skills at my maritime institution   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| I received sufficient English listening training at my maritime institution   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| I received sufficient English speaking training at my maritime institution  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| I received sufficient English reading training at my maritime institution   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |

|   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I received sufficient English writing training at my maritime institution     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I obtained sufficient psychological knowledge at my maritime institution      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English textbooks were useful in improving my English ability        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English teachers were very helpful for improving my maritime English | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maritime English exams were good measurements of my maritime English ability  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I liked the Maritime English teaching methods at my maritime institution      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**I. To what extent do you agree that the following factors can create barriers in English communication?**

|  | Strongly disagree        | Disagree                 | Neither agree nor disagree | Agree                    | Strongly agree           |
|--|--------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| Difficulty in understanding foreign accents    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Working environment (noise, vibration, stress) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Foreign seafarers speak too fast               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Poor vocabulary myself                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Poor pronunciation myself                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Poor grammar myself                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Incorrectly use of grammar by other seafarers  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Feeling shy to speak English                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> |

Other factors creating barriers in English communication

**J. To what extent do you agree or disagree that the following strategies are suitable for improving seafarers' ability in maritime English?**

|  | Strongly disagree | Disagree | Neither agree nor | Agree | Strongly agree |
|--|-------------------|----------|-------------------|-------|----------------|
|--|-------------------|----------|-------------------|-------|----------------|

|  |                          |                          | disagree                 |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Employing native English lecturers with maritime background      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Learning English from cases of maritime communication in reality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Encouraging seafarers to practice English frequently             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Encouraging seafarers to speak freely                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Immersing seafarers in an English speaking environment           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Other ways to improve maritime students' communicative competence

**K. If you wish, please feel free to write any comments in relation to this study.**

**L. If you wish to participate in an individual interview afterwards, please contact the student investigator Lidong Fan ([Lidong.fan@utas.edu.au](mailto:Lidong.fan@utas.edu.au)) or leave your contact information here.**

## Appendix 4: Questionnaire questions (Chinese version)

亲爱的海员朋友：

诚挚邀请您参加一项网上调查，此调查旨在研究中国海员的整体英语交流能力的现状，寻求提高海员交流能力的方法，帮助提升海员整体国际竞争力。您的参与将极大地提高此项研究的价值，使其更有针对性。

此调查分为八个小部分，基本上全是选择题，问题涉及本人英语交流能力现状，英语交流中出现问题的原因以及这些问题对您本人在外派方面的影响。问卷调查需要大约20分钟，匿名进行，并且是完全自愿的，如果需要，您可以在任何时候选择放弃，放弃调查不会对您造成任何负面影响。如果有任何问题，可以联系调查员范利东（[lidong.fan@utas.edu.au](mailto:lidong.fan@utas.edu.au)）。本调查已得到澳大利亚塔斯马尼亚社会与科学研究道德委员会批准，批准号为：H0014968

如果您同意参加此项调查，请直接进入问卷调查。

感谢您对本研究所作的贡献！

学生调查员：范利东  
国家港口与航运中心  
塔斯马尼亚大学澳大利亚海事学院  
2015年6月

A.1. 您的学历是什么？

- 1.高中
- 2.大专
- 3.本科
- 4.硕士

A.2. 您的年龄是？

- 1.18-25岁
- 2.26-40岁
- 3.41-55岁
- 4.56岁及以上

A.3. 您目前在船上的职位是？

- 1.船长/轮机长
- 2.大副/大管轮
- 3.二副/二管轮
- 4.三副/三管轮
- 5.船上实习生（卡带cadet）
- 6.水手/机工/
- 7.Other \_\_\_\_\_

A.4. 您有没有在大多数为外籍海员的船上工作的经历？（本调查所涉及所有外籍海员仅指母语非汉语的海员）

- 1.有
- 2.没有

A.5. 如果有上述外派经历，您的合同一般签多长时间？

- 1.6个月以下
- 2.6-9个月
- 3.10-12个月

4.12个月以上

A.6. 如果有上述外派经历，您签过几次外派合同？

- 1.1个
- 2.2个
- 3.3个
- 4.4个
- 5.5个以上

A.7. 您的海龄总共多长时间（不论外派与否）？

- 1.1年以下
- 2.1-3 年
- 3.4-6年
- 4.7-10年
- 5.10年以上

B. 如何评价你的英语语言能力？

| B1                | 很差（听不懂）                  | 差（听懂少数单词）                | 一般（能理解大意）                | 好（个别单词听不懂）               | 很好（完全听懂）                 |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的日常英语听力能力？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B2                | 很差（不能表达）                 | 差（简单交流但不连贯）              | 一般（连贯表达但常有错误）            | 好（清晰表达但词汇有限）             | 很好（能准确流利表达）              |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的日常英语口语能力？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B3                | 很差（看不懂）                  | 差（看懂几句）                  | 一般（看懂大意）                 | 好（个别句子看不懂）               | 很好（完全看懂）                 |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的日常英语阅读能力？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B4                | 很差（不会写）                  | 差（会写简单句子）                | 一般（会写较复杂句子）              | 好（行文准确文章组织合理）            | 很好（在词汇句型使用上灵活多变）         |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的日常英语写作能力？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B5                | 很差（海事通信时，听懂几个单词）         | 差（海事通信时，听懂个别英语句子）        | 一般（海事英语通信时，听懂个大概）        | 好（听懂大部分英语海事通信）           | 很好（完全听懂英语海事通信）           |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的海事英语听力能力？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B6 | 很差（例如，海事通信时，不会说） | 差（例如，海事英语通信时，只会说） | 一般（例如，海事通信时，基本能） | 好（例如，胜任用英语呼叫和应答） | 很好（例如，完全胜任呼叫和应 |
|----|------------------|-------------------|------------------|------------------|----------------|
|----|------------------|-------------------|------------------|------------------|----------------|

|                   | 英语)                      | 几句)                      | 表达意思)                    | 海事通信, 有时听不懂个别单词)         | 答海事通信)                   |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的海事英语口语能力? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B7                | 很差(看不懂英文航海出版物)           | 差(看懂简单几句)                | 一般(看懂大意)                 | 好(个别句子看不懂)               | 很好(完全看懂海事出版物)            |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的海事英语阅读能力? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| B8                | 很差(例如, 不会写海事报告)          | 差(例如, 会写简单几句海事报告)        | 一般(例如, 能写海事报告基本意思)       | 好(例如, 会写完整海事报告)          | 很好(例如, 能专业书写海事报告)        |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 如何评价您自己的海事英语写作能力? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## C. 关于跨文化能力, 多大程度上同意或者不同意以下陈述?

|  | 非常不同意                    | 不同意                      | 中立                       | 同意了                      | 非常同意                     |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| C1.我已经了解了一些外国文化                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C2.交流时, 我已经做到了考虑外籍海员不同文化特点(问卷中外籍海员指母语非汉语的海员)     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C3.我能够说出一些外籍海员国家的名人或著名景点                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C4.我已经学会了用一些外籍海员国家的语言进行简单问候(除英语外, 日语, 韩语, 俄罗斯语等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C5.我愿意与外籍海员分享中国文化                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C6.我会通过与外籍海员直接交流来了解他们的文化                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C7.外籍海员在场时, 我会和中国海员改用英语交流                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C8.在外籍船舶上, 我养成了用英语问候和主动交流的习惯                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C9.我经常通过与外籍海员交谈来了解他们处理工作的方式                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## D. 关于语言心里能力, 多大程度上同意或者不同意以下陈述?

|  | 非常不同意                    | 不同意                      | 中立                       | 同意了                      | 非常同意                     |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| D1.在船上交流时, 能用中文的地方, 我都说中文                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D2.在不能使用中文的情况下, 想家的时候我会找外籍海员聊聊天以缓解一下心情     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D3.在不能使用中文的情况下, 当忧愁烦恼时, 我会找外籍海员聊聊天以缓解一下心情  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D4.在不能使用中文的情况下, 当工作压力大时, 我会找外籍海员聊聊天以缓解一下心情 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



|                                |                          |                          |                          |                          |                          |
|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| D5.目前, 与外籍海员交流时, 我对自己英语很自信     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D6.紧急情况下, 我也能够有效地进行英语交流        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D7.在用英语交流时, 我通常不会自我重复和自我纠正语法错误 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

E. 关于交际策略能力, 多大程度上同意或者不同意以下陈述?

|  | 非常不同意                    | 不同意                      | 中立                       | 同意了                      | 非常同意                     |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| E1.当不会用英语表述时, 我会充分使用身体语言   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E2.如果用英语不能解释时, 我会借助其他方式来解释 (例如用拍照图片来展示说明)                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E3.即便我会说复杂的句子, 我也倾向使用简单易懂的英语进行交流                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E4.英语交流时, 我能用幽默或调侃的语气来使气氛变得轻松  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E5.英语交流时, 我注重使用委婉语以避免冒犯对方  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E6.我学会了一些常见的英语交流技巧 (例如避免禁忌和敏感话题, 多问when, where, why等问题显示出对对方话题有兴趣等等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

F. 关于英语语用能力, 多大程度上同意或者不同意以下陈述?

|                          | 非常不同意                    | 不同意                      | 中立                       | 同意了                      | 非常同意                     |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| F1.我经常找机会与外国人练习英语        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F2.我经常观看带中文字幕的英文原版电影或电视剧 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F3.我经常说英语                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F4.我经常阅读英文读物             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F5.我经常用英文写信或其他形式的书面材料    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

G. 对您来说, 下面的因素对海员外派有多重要? (海员外派指外派到英语为主要工作语言的船舶上)

|          | 不重要                      | 有点重要                     | 中等重要                     | 重要                       | 很重要                      |
|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 日常英语听力能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 日常英语口语能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 日常英语阅读能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 日常英语写作能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 海事英语听力能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 海事英语口语能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|                |                          |                          |                          |                          |                          |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 海事英语阅读能力       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 海事英语写作能力       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 通过大学英语四级考试     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 英语语言综合能力（听说读写） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 跨文化交际能力        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 对公司的忠诚度（不怎么跳槽） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 工作热情和投入度       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 团队意识           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 领导能力           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 船舶专业知识与技能      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 个人人际关系处理能力     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

还有哪些因素对外派很重要？

H. 关于您在海事院校接受到的英语教育与培训，您在多大程度上同意以下观点？

|   | 非常不同意                    | 不同意                      | 中立                       | 同意                       | 非常同意                     |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 我在海事院校学习了足够的英语语言知识（发音，词汇，语法等）   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校曾经接受过足够的跨文化知识训练   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校曾经学习了足够的英语交流策略（交流中断时，如何使交流继续进行而采取的措施）                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校曾经接受过足够的英语听力方面的实际训练   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校接受过足够的英语口语方面的实际训练   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校接受过足够的英语阅读方面的实际训练   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校接受过足够的英语写作方面的实际训练   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我在海事院校曾经接受过一些心理语言方面知识训练（例如，如何克服英语表达心里障碍(如害怕说错)，如何积极参与英语交流，如何应对听不懂的语句等等） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 海事英语教材对提高我的海事英语实际能力有很大帮助  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|                           |                          |                          |                          |                          |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 海事英语老师对提高我的海事英语实际能力有很大帮助  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 海事英语大证考试能够有效地测试我的海事英语实际能力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 我喜欢海事院校的海事英语教学方法          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## I. 您在多大程度上同意下面因素能造成英语交流障碍?

|                      | 非常不同意                    | 不同意                      | 中立                       | 同意                       | 非常同意                     |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 听不懂外籍海员的口音           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 船上工作环境(噪音,船舶摇晃,天气因素) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 外籍海员语速过快             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 自身词汇量不足              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 自身发音不准               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 自身语法薄弱               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 交流对方不使用正确英语语法        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 说英语时感到害羞(担心说错)       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

还有哪些是造成英语交流障碍的因素?

## J. 您在多大程度上赞同以下方法可以用来提高海事类学生英语交流能力?

|                              | 非常不同意                    | 不同意                      | 中立                       | 同意                       | 非常同意                     |
|------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 雇用英语为母语且有海事背景的英语老师进行课堂教学     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 教学方面,以海事英语通信的实际案例作为教学辅助材料    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 督促和鼓励在校海事类学生频繁使用英语           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 鼓励在校海事类学生自由开口说英语(不要过度关注语法问题) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 让海事类学生融入英语环境中(例如在外籍船舶上实习)    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

还有哪些方法可以提高海事类学生英语交流能力?

## K. 愿意的话,对该研究作出评论?

|  |
|--|
|  |
|--|

L. 如果愿意参加面访，请联系学生调查员范利东，邮件地址: [lidong.fan@utas.edu.au](mailto:lidong.fan@utas.edu.au), 或留下你的联系方式。

|  |
|--|
|  |
|--|

## Appendix 5: Interview questions (English version)

### 1. Interview questions for employers

Question 1. When you recruit seafarers, what attributes are important to you?

Question 2. What are the main barriers for Chinese seafarers to be employed in your company?

Question 3. Do you think that communication ability in English will affect your decision on recruitment? Why?

Question 4. Do you think that Chinese seafarers employed in your company can communicate effectively with speakers of other languages? Why?

Question 5. Do you think Chinese seafarers are sufficiently educated and trained in the aspect of English to work on foreign ships? Why?

Question 6. What is your view on Chinese seafarers' communicative competence?

Question 7. When you employ Chinese seafarers, what main aspects of their communication ability do you assess? Why and how? Any criteria?

Question 8. If Chinese seafarers pass the interviews in English, do you think their English ability is sufficient for the jobs on your ships?

### 2. Questions for lecturers

Question 1. How many years have you worked as a maritime English lecturer?

Question 2. What is your view on Chinese nautical graduates' communicative competence?

Question 3. What teaching materials do you use for maritime English teaching?

Question 4. What aspects do you focus on when you teach maritime English?

Question 5. How do you assess students' learning outcomes?

Question 6. What is your view on the requirement on seafarers' communication in the Manila Amendments 2010?

Question 7. What's the biggest challenge for you to teach maritime English?

Question 8. What are your comments on maritime English education and training in China?

### **3. Questions for seafarers**

Question 1. What are the challenges for you to work on foreign ships?

Question 2. Have you ever experienced any difficulty in communicating in English on board?  
If yes, what are they?

Question 3. Do you think you have been properly educated/trained in English communication prior to working on board? If not, what were the main issues?

Question 4. What improvements are needed in the aspects of maritime English education and training in China?

## Appendix 6: interview questions (Chinese version)

### 船东面试问题:

问题 1: 雇佣海员时, 您看重海员哪些方面?

问题 2: 海员哪方面不足会使您决定不会雇佣该海员?

问题 3: 如果海员英语能力欠缺, 其他方面还行, 您会考虑雇佣他吗? 为什么?

问题 4: 贵公司的中国海员与外籍海员英语交流时还存在障碍吗? 为什么?

问题 5: 您认为中国海员在学校得到了足够的英语教育与培训吗? 为什么?

问题 6: 您对整体中国海员的英语交际能力有什么评价?

问题 7: 面试中国海员时, 贵公司主要考察海员英语交际能力的哪些具体方面? 为什么? 如何考察, 有何标准?

问题 8: 如果中国海员通过贵公司的面试, 您认为以他们现有的英语能力能直接进入工作吗? 还是需要额外的岗前英语强化培训?

### 教师面试问题:

问题 1: 您教学海事英语多少年了?

问题 2: 您如何评价海事类毕业生的英语交际能力?

问题 3: 您主要使用什么海事英语教学材料? 教材和题库的时间分配比例是多少?

问题 4: 教学过程中, 主要精力集中在哪些方面? 为什么?

问题 5: 您如何对学生的英语学习效果进行考察? 考察内容来源, 考察方式, 考察题型是什么等等。

问题 6: 您对 2010 马尼拉公约对海员英语方面的要求怎么看?

问题 7: 海事英语教学过程中, 您发现最大的挑战是什么?

问题 8: 最后, 您对中国海员英语教育与培训体系有何评价和建议?

### 海员面试问题:

问题 1: 在外派船上工作中, 您认为最大的挑战是什么?

问题 2：您曾经在船上遇到到英语交流问题吗？如果有，具体是什么问题？造成该问题的主要原因是什么？

问题 3：您认为学校里培养的英语交流能力在工作中够用吗？如果不够用，主要问题是什么？

问题 4：最后，您认为中国海员英语教育和培训体系哪些方面有待提高？



## Appendix 7: A mapping between five components of communicative competence and their corresponding questions

